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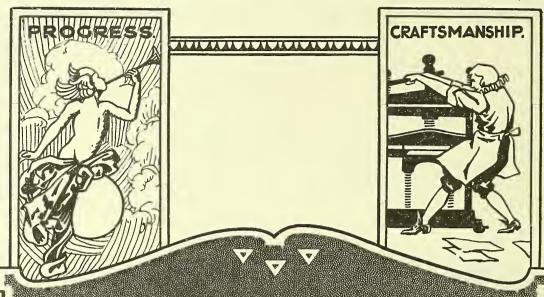
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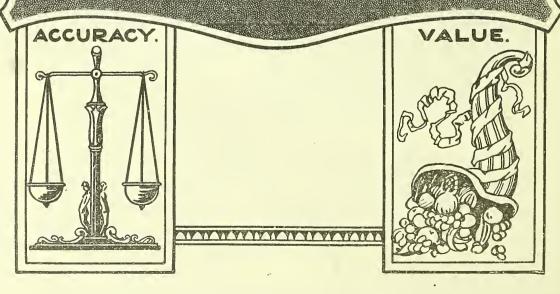


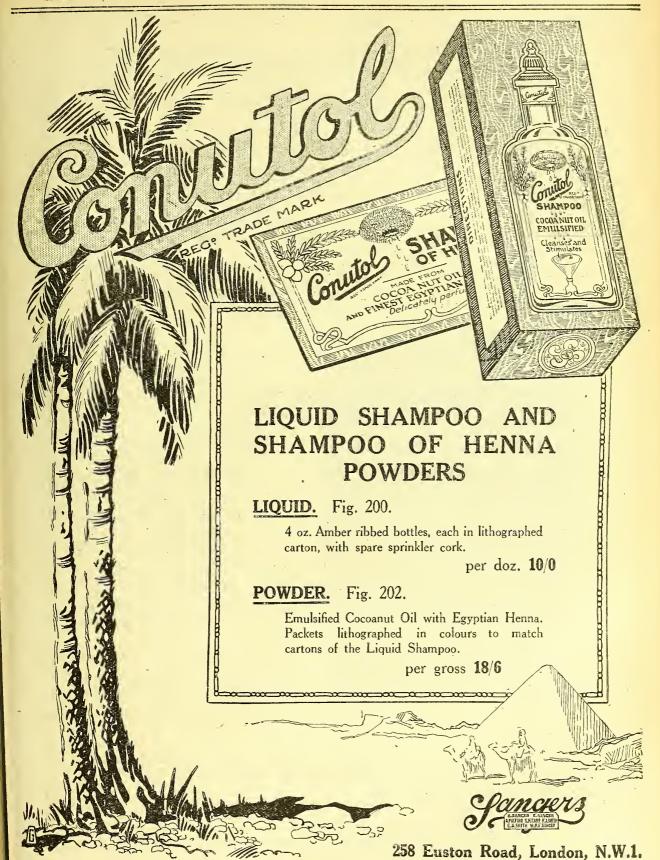
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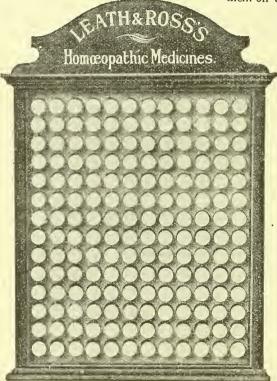
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WAKE UP NOW

H.R.H. The Prince of Wales has appointed a homocopathic physician to be his regular Medical Attendant.

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Maws



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Do you fully realise the importance of toilet brush business?

On a very conservative estimate £1,000,000 is spent every year in the British Isles on tooth-brushes alone. What must be the total value of toilet brush sales?

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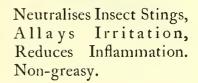
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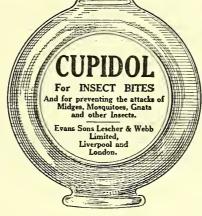
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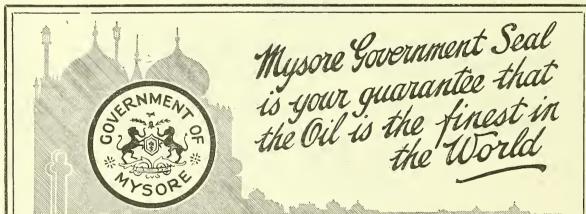
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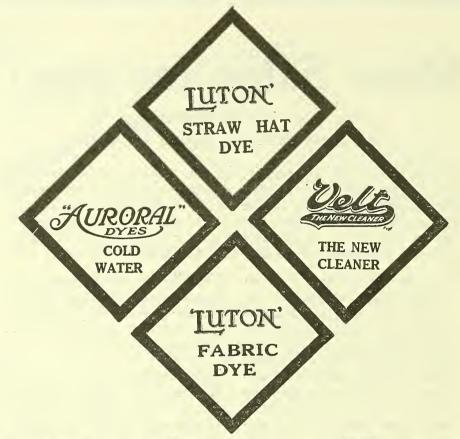
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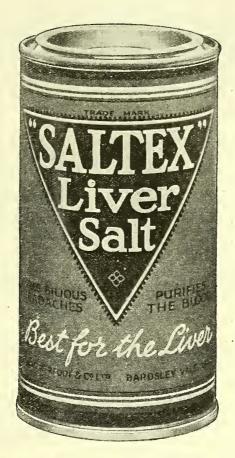
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Here is a full sized illustration of the 9d. tin of "Saltex" Liver Salt. Even this black and white print shows that the effect is unusual, arresting and pleasing, but it cannot show the striking colour scheme of the original—yellow, deep blue, peacock green and white, judiciously contrasted. Introduced in 1924, "Saltex" has already won its spurs as the most distinctive Liver Salt on the market. It is significant that a second size should have been called for so quickly. Its truly pharmaceutical qualities commend it to every Pharmacist who looks ahead and builds for the future.

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THE product of a House of definitely pharmaceutical traditions, "Saltex" is a Liver Salt which Chemists can handle with complete confidence. The "Get up" is novel and distinctive whilst the carefully balanced "Saltex" formula ensures a palatable drink of high medicinal activity. The profit margin is on the usual "worth while" Kerfoot lines and you do not have to share it with the grocer or general dealer.

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A "Piper" wha skirls was amongst them wha came,
To see if the twa were nae baith just the same.

He cam' wi his pipes and his chanter sae braw, But losh me for rats he saw naething ava, The place was infested, flaer, ceiling and wa', The chap was demented and wanted awa'.

Noo, there's folks would swear it was vats that he saw, And that as a "Piper" he was nae guid at a', Be that as it may! He did nae lang blaw, Till the rats took tae rinnin' and leavin' the wa'.

The "Fair Maid o' Perth" is still just the same,
But "Rodine's" noo famed frae the Carse tae Kildane
There's nae rats in Perth, No! they a' gaed awa'
Wi' the "Piper" his chanter, wee kiltie and a'.

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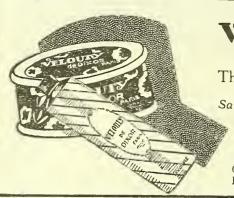
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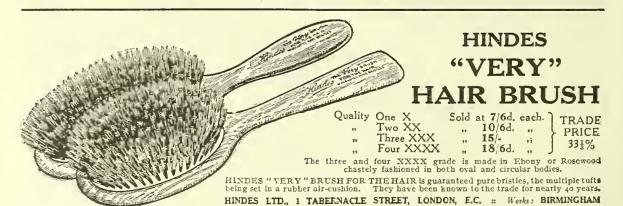
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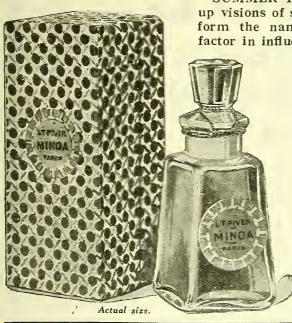
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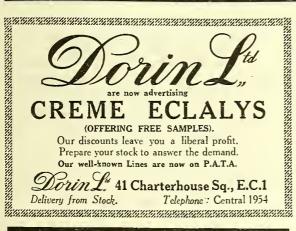
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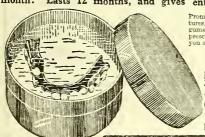
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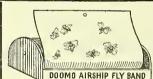
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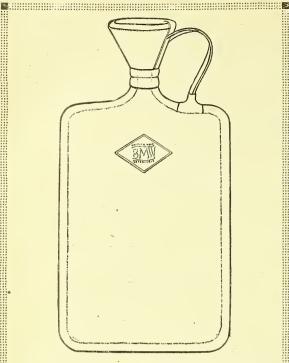
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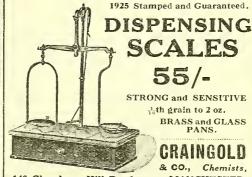
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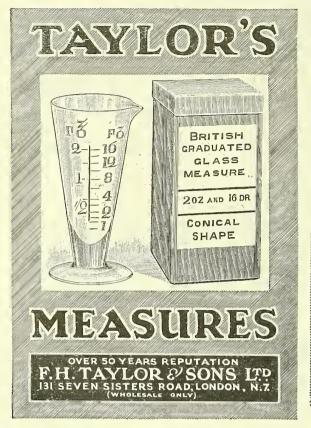


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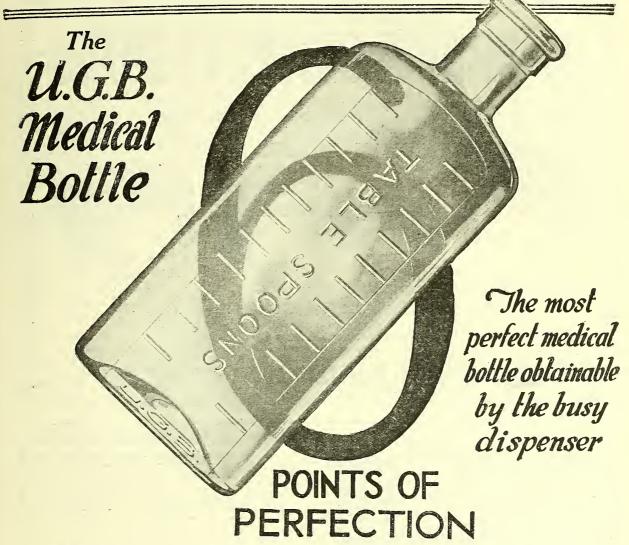
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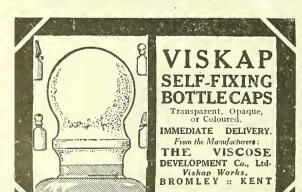
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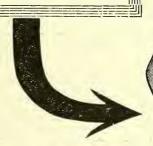
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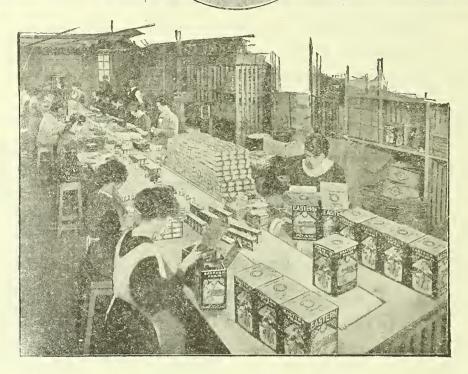
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CONFERENCE NUMBER

AUGUST 1, 1925

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Retail Pharmacists' Union

A MEETING of the executive of the Retail Pharmacists' Union and the Chemists' Defence Association, Ltd.. took place at 19 Tavistock Square, London, W.C.1, on July 21 and 22. Mr. John Hague was in the chair, and there were also present Messrs. Clubb, Forster, French, Gilleghan, Hardy, Keith, Martin, Melhuish, Phillips, Rowsell, Scholes, Smalley and Tranmer. Among the matters deait with were the following: A sub-committee was appointed to meet other bodies concerned with the Proprietary Medicines Bill and represent the interests of pharmacists. Support was promised to opposition to the introduction of the C.O.D. parcels post. The secretary was appointed to represent the Union on the Federation of Medical and Allied Societies. Efforts are to be made to stop the giving of dividends on insurance dispensing by co-operative societies, and, referring to the Royal Commission on National Health Insurance, it was decided that the attention of the Standing Committee for Scotland be drawn to the fact that Mr. J. R. Hill, in giving his evidence on behalf of Scottish chemists, had supported his case by references to English pharmacy, which, in the opinion of the Executive, were quite unnecessary, and gave an erroneous view of the conditions obtaining in English pharmacy.

Mr. W. E. Garlick, chemist and optician, has been elected President of the Chesham and District Traders' Association.

Mr. Francis Carter, President of the Pharmaceutical Society, Orange Free State, has again been elected as representative of the chemists and druggists on the Medical and Pharmacy Board of the Orange Free State for a further period of three years from July 13, 1925. He has previously served two similar periods.

English and Welsh News

The Editor will be obliged if subscribers will send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

Contracts

The following tenders have been accepted by the bodies named:-

Crown Agents for the Colonies.—Arthur H. Cox & Co., Ltd., Brighton, medicinal tablets, for Tonga, Friendly Islands.

Birmingham

In Birmingham City Court, recently, S. Bishop, Summer Lane, was fined £5 for having exhibited a projecting sign containing the words, "Chemist Depôt for Iron Jelloids," he not being a registered chemist and druggist.

Professor Thomas Turner has been appointed Dean of the Faculty of Science of the University of Birmingham. The Professor, a Birmingham man, was a demonstrator of chemistry at the Old Mason College under Sir William Tilden.

At a meeting of the Birmingham Education Committee a recommendation of the Hygiene Sub-Committee was approved in favour of the acceptance of the following tenders for supply of drugs, dressings, etc., for use in school clinics: Drugs, chemicals, etc., Philip Harris & Co. (1913), Ltd.; bandages, dressings, etc., S. Maw, Son & Sons, Ltd.

Liverpool

The breaking up of the drought on July 25 has caused a considerable diversion of sales and window displays at many pharmacies.

The elder son of Mr. John H. Robinson has matriculated at both the Loudon and Liverpool Universities. He is studying engineering, practical and theoretical, near Birmingham.

American chemists visiting this country saw a good deal of Merseyside at the week-end, being entertained at Warrington and Widnes, and making their headquarters at Chester. The deputation was led by Dr. Charles L. Reese, president of the American Institute of Chemical Engineers, for nearly twenty-five years a directing spirit in the chemical department of the Du Pont Company.

Miscellaneous

BURGLARY.—The premises of Mr. F. Goddard, chemist, 361 Holdenhurst Road, Bournemouth, were broken into last week and money and property to the value of about £50 stolen.

FIRE.—Considerable damage was done at the Widnes works of W. J. Bush & Co., Ltd., manufacturing chemists, by a fire which broke out on July 19. Four fire brigades were engaged in quelling the outbreak.

British Chemical Plant Manufacturers' Association.—The annual general meeting was held at 166 Piccadilly. London, W.1. on July 22, when the following officers were elected for 1925-26:—Chairman, Dr. R. Seligman; Vice-Chairman, Mr. J. A. Reavell; Honorary

Treasurer, Mr. E. A. Alliott. A dinner was held on the same evening at the Holborn Restaurant, when the guests were: Mr. F. H. Carr, Mr. J. V. N. Dorr, Mr. E. V. Evans, and Mr. R. L. Mond.

Unstamped Cards.—At Blackburn Police Ccurt, on July 29, Harry Huntington and Frederick King, Dunming Road, Middlesbrough, trading as the Regal X Manufacturing Co., were each ordered to pay fines and costs amounting to £10 10s. for neglecting to stamp unemployment and Insurance cards. It was stated for the Ministry of Health that the defendants prepared special preparations supposed to cure rheumatism and other complaints, and these were sold in packets from door to door at a charge of 2d. each. Complaints had been received regarding the defendants' default in the stamping of cards from various parts of the country.

INQUESTS.—The resumed inquest was held on July 22 on Albeit Edward Lacey (38), a Leicester silk merchant, who was found dead in a bath at a Wolverhampton Hotel on June 21. The coroner read the certificate of Mr. Webster, the Home Office analyst, which stated that the stomach contained one-twenty-fifth of a gram of hydrostomach contained one-twelly-little of a grain of hydrocyanic acid, probably taken in the form of an alkaline salt, such as potassium cyanide. The bottle, found in the bedroom, contained thymol crystals, and a 6 per cent. solution of cyanide potassium. The coroner said the man had evidently swallowed the poison as a dentifrice. A verdict was returned of "Death by misadventure."—Mrs. Harriett M. Kelly, Beech House, Redhill, who fcared she had cancer, committed suicide from veronal during temporary insanity.

BANK HOLIDAY CLOSING.—The London County Council has issued a notice calling the attention of shopkeepers to the arrangements authorised in respect of the August Bank Holiday period. If a shop is closed throughout the whole of a Bank Holiday, the shopkeeper may keep his shop open either on the half-holiday immediately before or on the half-holiday immediately after the Bank Holiday. Shopkeepers must close their shops as usual at the prescribed hours in the evening on each of the days before the Bank Holiday. A shop assistant need not be given the prescribed weekly half-holiday in the week immediately preceding Bank Holiday if he is not employed at all on the Bank Holiday and if he is also given his half-holiday during the Bank Holiday week.

PRESERVATIVES ORDER.—The Bakery Allied Traders' Association has sent to the Prime Minister a vigorous protest against the Prescriptives Order. The effect of the Order, the Association states, will be to expunge entirely a large trade in which members of this associa-tion are concerned, and hand it over to a monopolistic interest which practically controls the cold storage business. The protest states that the weight of medical opinion is against the Ministry of Health as to the openion is against the Ministry of Health as to the necessity of the proposed prohibition of boron preservatives. Neither Parliament nor the public has had any opportunity of considering the evidence on which the departmental committee based its findings, and so cannot estimate what justification there may be for the drastic action proposed. The liquid egg trade will be extinguished by departmental regulation.

Poison-licence refused.—At a meeting of Clitheroe Town Council, on July 28, R. Dugdale & Sons, corn merchants, etc., applied for a licence under Section 2 of the Poisons and Pharmacy Act, 1908. Mr. Harrison opposed the application on behalf of the local pharmacists, on the ground that adequate facilities already existed for these sales. He comphasised that before granting the licence the Council must be satisfied that the existing arrangements to obtain these substances were not adequate. The licence applied to arsenical preparations of a dangerous description. An ordinary package of sheep dip contained 1,000 fatal doses. The pharmacists urged that it was against the public interest to allow an unnecessary number of persons to distribute poisons which should only be handled by qualified persons. The licence was refused on the ground that ample facilities are already available.

IN THE COURTS.—At Folkestone on July 23, Heinrich Mayer, a German, on remand (C. & D., July 25, p. 118), pleaded guilty to conveying six ounces of novocaine with intent to defraud the Customs. Mayer, who had been

in prison for a week, was fined £2 13s., double the value and duty.—At the Whitechapel County Court, London, on July 22, Israel Rosenstein claimed an award under the Workmen's Compensation Act from his employer, Alec Harris, for dermatitis, alleged to have been contracted through using spirit shampoo. Judge Cluer pointed out that applicant was required under the statute to produce through using spirit shampoo. Judge Cluer pointed out that applicant was required under the statute to produce a certificate from a certifying surgeon, and as he was not able to do this he could not make an award. The respondent was granted his costs.—At Clerkenwell Police Court, London, on July 23, James Keith Dixon, 32, clerk, of St. John's Road, Brixton, was charged, on remand, before Mr. Gill, with stealing two registered letters containing £10 3s., the property of E. H. Maisner & Co., wireless dealers, of Margaret Street, Clerkenwell, his employers. Thomas Wooldridge, described as a chemist, Lisle Street, Leicester Square, was charged, on remand, with being concerned with Dixon in stealing and receiving, from E. H. Maisner & Co., Margaret Street, Clerkenwell, twelve pairs of wireless headphones and 26 boxes, each containing 50 electric bulbs, value £14 2s. 6d. Dixon pleaded guilty to stealing the registered letters. Wooldridge said he had never bought headphones or electric bulbs from Dixon. The wireless business was managed by his wife. Both men were committed for trial.—On a charge of stealing two cameras and cases and a bicycle bell, together valued at £3 2s. 3d., from the Fore Street shop of Timothy White Co., Ltd., Devonport, where he had been employed as an errand boy, Reginald John Honeywill (16), was bound over on July 28.

Scottish News

Brevities

A Scottish chemist recently received a prescription for tinctura iodi fortis in 10 minim doses ter die. prescriber confirmed the dose. Our correspondent adds:
"The patient is still going about; evidently iodine absorption is a very slow process."

Edinburgh

Mr. John Mulvenna, chemist and druggist, who was formerly in business at Abbeyhill, and left Edinburgh for New Zealand some years ago, has returned to the city for a brief holiday.

A memorial tablet has been unveiled in the entrance hall of the Royal Botanic Gardens to commemorate those members of the staff killed in the war, and also as a memorial to Sir Isaac Bayley-Balfour, administrator of the Gardens.

At the Health Exhibition, held recently in the Waverley Market, Edinburgh, the following were among the awards: Silver meda's to Ambrosia, Ltd., for Ambrosia full-cream dried milk; Berkfield Filter Co., Birmingham, for twin hospital filter; Chance Brcs. & Co., Birmingham, for laboratory glassware and tubing; Kirby Fairbank, Ltd., Grimsby, for cod-liver oil; Southall Bros. & Barc'ay, Ltd., for maternity sets and compressed sanitary towels.

Glasgow

The Gasgow Health Exhibition, which was to have been held in September, has been cancelled, owing to the burning of the Kelvin Hell.

Mr. T. J. Collier (J. Grossmith, Son & Co., Ltd.. London) will be showing a full range of samples at 142 Queen Street, from August 3 to August 28 inclusive.

THE ANNUAL MEETING of the Portsmouth Pharmacists' Association was held recently at the County Club. For the ensuing year Mr. W. H. Bown follows Mr. W. R. Atterbury as President, and the new Vice-President is Mr. G. W. Darling. Messrs. Egerton and Ruoff were reelected Treasurer and Secretary respectively. The sum of £3 3s. was voted to the Benevolent Fund of the Pharmaceutical Society, and £1 1s. each to the Early Closing Association and the local chamber of commerce, the secretary being amonited representative on the latter held. tary being appointed representative on the latter body.

Irish News

Pharmaceutical Society of Ireland

At the Registered Druggists' examination, held in July, the following candidates passed:—Peter Martin, Christopher Patrick Nolan, James Andrew Clarke, William Close Hunter McKinty, Herbert Roberts, Wm. Reville, Thomas E. Stephenson, Eleanor M. Martin, Margaret Niblock.

Brevities

Mr. Augustus Bourke, M.P.S.I., has been co-opted a member of the Castlebar District Council.

Mr. Hubert Sweeny, M.P.S.I., Londonderry, has moved to new premises at 55 Strand Road, Londonderry.

Six-month tenders for the supply of medicines, appliances, cod-liver oil and malt extract, disinfectants and sheep-dip, lubricating oils, etc., are invited by the Local Government Department for the Free State on or before August 5.

Mr. Fred Storey, President of the Chemists' and Druggists' Society of Ireland, and Mrs. Storey, have invited members of the Society and their friends to a garden party at their residence, Maormar, Cultra, co. Down, on August 12.

Mr. R. F. McCartney, M.P.S.I., was one of the deputation from Coleraine Urban Council which waited on the Governors of the Irish Society of London during their recent visit to the town. The Governors present included the Lord Mayor and the Recorder of London.

The following business changes have taken place: Mr. A. Steede, M.P.S.I., F.S.M.C., has taken over Mount Royal Medical Hall, 276 Antrim Road, Belfast, lately carried on by the late Mr. C. H. Nesbitt. New Pharmacies have been opened by Mr. J. Reid, Ph.C., at 44 Mill Street, Ballymena, and by Mr. R. J. Martin, Ph.C., Main Street, Maghera, Co. Derry. Mr. S. D. McKinley, Ph.C., has taken over the Medical Hall of Mr. Joseph Millar, R.D., Irvinestown, Co. Fermanagh, who is going abroad.

The Local Government Department wrote to a recent meeting of the co. Wexford Board of Health intimating that they could see no reason for ordering medicines from Mr. Alphonsus Thornton, Ph.C.. Enniscorthy, who had sent in an account for £8 15s. 5d. The medical officer, they pointed out, should furnish requisitions quarterly. The action of the doctor was approved, and the department is to be asked to allow the Board to pay the contract prices for the medicines locally requisitioned.

Belfast

At the City Commission, on July 24, George Stanley pleaded guilty to personating John Hewton, Ph.C., of 315 Ormeau Road, at the Harbour election in March last. The judge said there would be a recorded sentence of six months' imprisonment, which would not be enforced if the accused entered into surety to keep the peace. Such leniency could not be expected in future. The necessary bail having been entered into, the accused was discharged.

The Minister of Home Affairs for Northern Ireland has now notified the different sections of the trade that he will shortly proceed with the nominations of the pharmaceutical council which is to be set up under the Pharmacy and Poisons Act. The Minister inquires if the names from which selection is to be made, and which were sent in some time ago, are still suitable for nomination, and it is understood that both sections of the trade have decided not to send in any further names. The Queen's University of Belfast, the Ulster Medical Society, the Ulster division of the British Medical Association, and the wholesalers, who are to have representation on the Council, have not yet made any nomination, and it is not considered likely that the Council will be completed until early in September.

Dublin

In the Dublin Court recently, Henry Knight, Ph.C., Dame Street, Dublin, was fined 15s. for failing to close his shop at the proper closing hour on July 9.

The premises of Roche & Roche, chemists, Ormond Quay, Dublin, were burglariously entered on July 25, and £9 in cash, fountain pens, and other articles stolen.

New Companies

and Company News
P.C. means Private Company and R.O. Registered Office.

SCHERING, LTD. (P.C.).—Capital £1,000. Objects: To carry on in the U.K. and elsewhere the business of chemists, druggists, drysalters, oil and colourmen, etc. Solicitors: Buckeridge & Braune, 3-4 Clement's Inn, London, W.C.2.

Sharp's Cash Pharmacy, Ltd. (P.C.).—Capital £500. Objects: To acquire the business of Sharp's Cash Pharmacy, 49 Edward Street, Brighton, and to carry on the business of chemists, druggists, patent medicine vendors and proprietors, stationers, dealers in fancy goods, wine and spirit merchants, etc. The directors are:—Ivy R. Sharp, Mrs. Annie Sharp, and H. J. Sharp. R.O.: 49 Edward Street, Brighton.

John Bell & Croyden, Ltd.—A petition to confirm the reduction of the capital from £175,000 to £42,750 came before Mr. Justice Eve in the Chancery Division on July 28. Mr. Sims, for the company, said the petition was brought on the ground that the capital had been lost or was unrepresented by available assets. His Lordship: To what extent? Mr. Sims: To the extent of 15s. a share. His Lordship: You have had a very bad time of it in recent years. How have you managed to lose £112,000 on physic? Mr. Sims: I can't say how they have done it, except that they have done it. This is the aggregate of the loss over some years. He added that it was proposed to cancel paid-up capital to the extent of 15s. on the £1 preference shares and 11d. on the shilling shares. On confirming the reduction, his Lordship said he prolonged the life of the company with reluctance. He thought it would have been better if it had never been born.



The drug index has advanced slightly, chiefly owing to the increase in the price of bismuth, the figure for July being 150.0. In the case of surgical dressings there has been no change. The chief alterations in prices since the quarterly issue of the C. d. D. Retail Price List on July 4 are as follows:—

	Cost	Selling Price (solid or liquid)				
	1 lb. or as stated	16.oz.	4 oz.	Il oza	1 dr.	Gr. or ℍ
Bism. carb lb. Bism. cit oz. Bism. oxid	s. d. 16 6 1 5 2 0 15 6 1 5 14 3 11 6 14 0 2 0 16 0 6 8 7 6 8 9	s. d. 10 0	s. d. 7 1 — 6 8 — 6 1 5 5 6 5 — 7 0 3 0 3 3 3 10	s. d. 2 0 2 6 3 6 1 10 2 6 1 9 1 6 1 9 3 6 1 2 1 1 0 10	\$\begin{align*} \ddots & \ddot	s. d.
Menthol. valer. oz.	7 .3	- 1	-	12 9	2 2	_
Perichthol lb. Zingib.rhiz.Afric.crs.,,	4 0	6 0 2 6	2 8 0 9	0 5 0 3	0_1	_

Cotton Wool, First Aid (large), gross 16/6; sell 2/6 doz

Westminster Wisdom

By the "C. & D," Parliamentary Representative.

Oxalic Acid Duty

Sir Frank Sanderson, on July 29, asked the President of the Board of Trade whether, as there are to-day no British firms producing and selling oxalic acid, he can state the reason for the continued duty of 33½ per cent. on imports

of this commodity from abroad.

Sir Burton Chadwick replied that oxalic acid is included in the lists issued under Section 1 (5) of the Safeguarding of Industries Act as a fine chemical and a synthetic organic chemical. There is no power to exempt from liability to duty any commodity falling under any of the general headings in the Schedule to the Act.

The Minister of Health stated in the House of Commons on July 23 that the trade opposition to the prohibition of preservatives in food has in some cases taken the form of an allegation that the prohibition would increase the cost of the food. It is impossible, definitely, to prove or to rebut an allegation of this kind, but he did not think that there was any adequate ground for supposing that the prohibition of preservatives would cause an increase in prices if a sufficient period was allowed to enable the necessary changes to be effected. He did not think it necessary to institute further inquiry as to the use of small quantities of boron compounds in food.

LABELLING POISONS

Sir Newton Moore asked the Home Secretary on July 23 what steps are being taken to safeguard the interests of animal medicine makers in this country in view of the terms of the Order in Council of December 8, 1924, pursuant to Section 4 of the Dangerous Drugs and Poisons Amendment Act, 1923; whether he is aware of the difficult position in which animal medicine makers have been placed owing to the operation of this Order in Council; and whether, in view of the fact that they were given no epportunity of stating their case before the Order came into force, he will consider the possibility of introducing a short Bill during the present Session exempting medicines for farm animals and poultry from the operations of the Order?

Mr. Locker-Lampson: The Order in Council referred to does not come into operation until January 1, 1926, and the Home Secretary is advised that ample time has, therefore, been afforded to all persons selling poisons to take the necessary steps to comply with the Order. Before the Order in Council was made, careful consideration was given to the representations of the Animal Medicine Makers' and Allied Traders' Association. The Act makes the labelling compulsory for all preparations which contain a poison as one of the ingredients thereof. It would be the prescribed for the Government to premote legislation. not be possible for the Government to promote legislation, as suggested, for the exemption of a particular class of preparations.

PHARMACY SERVICE IN THE ARMY

Mr. Scrymgeour asked the Secretary of State for War on July 28 whether he is now prepared to publish the Report presented in 1922 by the Joint Committee on the subject of pharmacy in the Army; and whether the Army Council are now willing to accept the modified requirements of the Pharmaceutical Society as presented by the

ments of the Pharmaceutical Society as presented by the deputation thereof to the Director-General, Army Medical Services, at the War Office, in May, 1923?

The Secretary of State for War (Sir Laming Worthington-Evans): The Report of the Committee referred to was published by the Stationery Office last year in response to the wishes expressed by Members of this House. As regards the second part of the question, the Army Council are satisfied that the requirements of the Army Council are satisfied that the requirements of the Army in regard to pharmercy and dispensing are adequately met under present arrangements, and they would not be justified in incurring the expense of carrying out the changes advocated by the Pharmaceutical Society.

Mr. Scrymgeour: Seeing that there was agreement between the Army Medical Service Department and those who represent the pharmacy interests, is it not now recognised by the Department that there should be an improvement on the lines of those recommendations that were eventually made, as modified?

Sir L. Worthington-Evans I think the Service as now administered is an improvement on the past, and it is adequate.

Mr. Maxton: Is the right hon, gentleman not prepared to take the same care to safeguard the interests of the soldier that is taken to safeguard the interests of the civilian population?
Sir L. Worthington-Evans: Oh, at least as great.

Therapeutic Substances Bill

This Bill (the text of which was published in the C. & D., August 4, 1923, p. 198) was considered in Committee and read a third time in the House of Commons on July 24. On the consideration of Clause 1, which defines the substances to which the Act applies, Lieut. Commander Kenworthy said he wished to know what width of powers are being given to the Executive, as he was very jealous of giving away to any Government Department a right to add to schedules by regulament Department a right to add to schedules by regula-tion. It is a power liable to abuse, and should be very carefully watched. The Under-Secretary for Health for Scotland, who is a technical expert, perhaps can give some information as to the progress in science which will necessitate adding to the present list of vaccines, toxins, anti-toxins, etc. Why does not the Ministry of Health put in the schedule a complete list of the chemicals that it is proposed to restrict or control? Is it that other substances are expected to be discovered. Is it that other substances are expected to be discovered, or what is the reason? It may be a perfectly legitimate reason, but the House ought to have it. As a layman in the matter, he did not even know what dioxy-diamino-arseno-benzol-di-hydrochloride is. He saw that it is commonly known as salvarsan, but he did not even know what salvarsan is. If the substances the manufacture of which it is required to control are known they ought to be mentioned in the schedule, and it is unnecessary to give the Minister of Health power to add various other ingredients or chemicals or substances by way of regulation.

Sir Kingsley Wood said the schedule contains a list of the therapeutic substances to which the Bill will apply, and these are the substances, so far as is known at the present time, in respect of which it is necessary to make provision for examination, both as to their purity and their strength. The member will recognise the probability, and indeed the likelihood, of other substances being discovered, and it would be unwise for us to have to bring in another Bill for every new remedy that might be discovered. Therefore power has been taken to add by regulation any other substances which it is found necessary to add. As all regulations are to be laid before both Houses of Parliament as soon as may be after they are made, adequate protection is given be after they are made, adequate protection is given, and if any objection is taken to a regulation the usual Parliamentary procedure is provided. He did not think, however, that Parliament will be anxious to intervene in a matter of this kind in which the Ministry of Health has been largely guided by its advisers on the Medical Research Council.

Captain Wedgwood Benn asked whether the substances referred to in the schedule are "fine chemicals," and Sir Kingsley Wood said, "I do not think so. I will inquire and let the hon. member know."

Dr. Drummond Shiels said he supported strongly the larger page of the possibility of adding substances to

leaving open of the possibility of adding substances to the Schedule. He thought it would be quite out of the question to have a new Act of Parliament every time it was found necessary to add to the list of substances to which this measure applies. Even as it stands there are some omissions in connection with this schedule, and he proceeded to refer to the standardisation of cannabis, digitalis and supra-renal extract in the United States Pharmacopœia, but was reminded by the Chairman that his remarks were not in order at that stage.

Clause 2 dealing with restrictions on the manufacture

of the capeutic substances was added without comment. In Clause 3, referring to the importation of the capeutic which was agreed to, substituting the words 'licensing authority' (defined in Clause 7) for 'Commissioners of Customs and Excise' as the persons to decide whether the therapeutic substances comply with the prescribed standards.

Dr. Watts said this clause should be carefully thought out, or it will exclude supplies of the Spahlinger serum.

Sir Kingsley Wood then introduced a further amendment to the clause designed to meet this point. If the ment to the clause designed to meet this point. If the therapeutic substance is not made in this country the clause as drafted would not have allowed it to be imported, but the amendment provides that it must comply with "such standards of quality and purity as are prescribed in the case of therapeutic substances of a similar class, the manufacture of which is carried on." The Spahlinger serum will be required to conform to such regulations in regard to quality and purity as apply to serums generally, the object of the regulation being to ensure freedom from toxic constituents. If the Spahlinger serum is prepared with reasonable care, there is nothing to prevent its importation, but in view of the is nothing to prevent its importation, but in view of the risk that any horse serum may, without proper care in its preparation, be contaminated by anthrax, there must be general regulations of this kind laid down.

Dr. Shiels proposed an additional paragraph exempting preparations consigned to medical men by authority of the licensing authority for the purpose of testing the therapeutic value, but the Minister contended that the amendment proposed met the case. The amendment was

accepted.

on consideration of clause 4, which deals with the constitution of the Joint Advisory Committee, it was agreed to add "one member appointed by the British Medical Association" as representing medical practitioners generally. Dr. Watts moved that representatives of the Royal College of Surgeons of England and the Royal College of Physicians of London be added, and said he could not understand the inclusion of a representative of the Pharmaceutical Society and Institute of sentative of the Pharmaceutical Society and Institute of Chemistry, having regard to the fact that the Bill presumes that these are substances the purity of which cannot be ascertained by chemical means. The Minister could not accept this amendment, as it would mean other nominations and make the Advisory Committee of such a size as to be unmanageable. He said it would be helpful that a representative of the Pharmaceutical society should be concerned and engaged in an inquiry of this kind. The clause as amended was added to the Bill.

When clause 5, dealing with power to make regulations, when clause 5, dealing with power to make regulations, came on for consideration Captain Wedgwood Benn sought to make these subject to the approval of the House of Parliament, and Sir Kingsley Wood, after contending that this power was already included in the bill, accepted the amendment. The clause was added to the bill, as were Clauses 6, 7, and 8, without comment. The bill was then read a third time and passed.

The House of Lords on July 28 agreed to the amendments made in the Bill during its passage through the House of Commons. This completes the stages of the Bill, which now awaits the Royal assent.

Dangerous Drugs Bill

This bill (see p. 157) was introduced and read a first time in the House of Lords on July 22 to give effect to the Geneva Convention signed on February 19 (C. & D., March 7, p. 345, and March 14, p. 389). It adds to the list of "dangerous" drugs Indian hemp and its resins, list of "dangerous" drugs Indian hemp and its resins, synthetic cocaine, and preparations containing diamorphine in any proportion (previously preparations containing less than one-tenth per cent. were excluded). The definitions of ecgonine and "medicinal opium" are expanded and the expression "coca leaves" defined.

The second reading took place on July 28, Viscount Cecil said the bill is not contentious matter, but it is very important that the measure should be passed so soon as possible because the Government is very anxious to ratify

possible because the Government is very anxious to ratify the Geneva Convention at the very earliest moment. The Convention cannot be ratified before September 30, as it is open to signature until that date. After a slight reference to the changes proposed by the bill his lordship said the Government regard the Convention as constituting a very valuable advance in the struggle to bring under control the illegitimate use of the drugs or substances re-ferred to in the Convention. There are three broad divisions of the subject. There is raw opium, used for eating in India, which really is not an international question at all. It is concerned only with what the Indian

Government allows its Indian subjects to do with opium grown in India. Then there is opium smoking, which, apart from a few relatively unimportant exceptions, is purely a Chinese question. Practically it is only the Chinese who indulge to any extent in opium smoking, and he was bound to say that comparatively small advance was made by the Convention because of the immense difficulty of dealing with the thing in any way satisfactorily so long as there is a very large growth of opium in China, while the unhappy condition in which that country is renders it impossible in any way to control the illegitimate export of that drug from China. By far the most important subject dealt with by the Convention was the question of the use of those very dangerous and formidable drugs heroin, morphine, cocaine and the like. That is an evil which requires no words to emphasise. It is a very serious evil even in this country and a still more serious evil in other countries in the world. In some countries, indeed, it has reached the point that those who traffic in these drugs have been found pushing their pernicious wares even in the schools of the country and leading the unhappy children—for they are little more than that-into vice before they know what vice really means. It is a formidable evil, rendered all the more formidable by the fact that there are behind it, apparently, syndicates with considerable financial resources which drive this horrible trade and batten on the vices of their fellow creatures. The most important way of dealing with this vice is by the efforts of the national Governments, and he was able to assure them on the authority of the Home Office that, owing to the great efforts that have been made, the evil certainly is not a growing one in this country. It is to a very large extent under control here. But in addition to what can be done by the Governments of the countries concerned there are some ways in which international effort can be of service. There is no doubt that an international control of the traffic in these drugs would make it far less easy for the fiends who deal in them to have the means of pushing their iniquitous traffic and the main purpose of the greater part of the provisions of the Convention is to institute an international supervision and control over the traffic in these drugs. It is not so hopeless or so difficult a matter as one might assume at first because, fortunately, the drugs are only manufactured in a very small number of factories, not many more than ten. If proper national control can be obtained over these factories and international control over the traffic problem then a good deal might be done to assist in diminishing, or even extirpating. this vice.

That is the main purpose of the Opium Convention. An untoward incident that occurred was the difference of opinion that arose between the American and Chinese Delegations and the rest of the Delegations assembled at Geneva. He regretted that difference as much as anybody, but it is a satisfaction to remember that it was a difference which had really nothing whatever to do with the control of the drugs traffic on which a very general agreement was reached, and though, owing to the withdrawal of those two Delegations they did not sign the Convention, it is to be hoped that that does not mean that they will not be ready to co-operate in every way in which they can in carrying the policy of those Conventions into effect.

Lord Haldane said the bill deals with a highly technical

subject, and it is impossible to form any judgment on the details of the bill. The question of principle arises as to whether it is possible by international convention to regulate the use of "dangerous" drugs throughout the world. It is not a new principle, but is pushed forward in this bill to a number of other drugs than opium, though not so widely used. He regarded as the least controversial functions of the League of Nations those which deal with social questions of this and other kinds that affect all parts of the world.

On committing the bill to a committee of the whole House, Earl Buxton said he did not understand why there was this sudden urgency for it. There was plenty of opportunity to introduce the bill earlier so that they might have had an opportunity of considering it properly.

The Marquis of Salisbury explained that the Government desired to pass the bill quickly through Parliament.

A promise was given to confer with the Earl Buxton before putting down the bill.

Dangerous Drugs Bill, 1925

BILL

INTITULED

An Act to amend the Dangerous Drugs Acts, 1920 and 1923, so far as is necessary to enable effect to be given to a Convention signed at Geneva on behalf of His Majesty on the nineteenth day of February, nineteen hundred and twenty-five.

MHEREAS at a conference held at Geneva for the purpose of completing and strengthening the provisions of the International Opium Convention signed at the Hague on the twenty-third day of January, nineteen hundred and twelve (hereinafter referred to as "the Hague Convention"), a convention for the purpose aforesaid (hereinafter referred to as "the Geneva Convention") was signed on behalf of His Majesty on the nineteenth day of February, nineteen hundred and twenty-five:

And whereas by Article 8 of the Geneva Convention it is provided that, in the event of the Health Committee of the League of Nations, after having submitted the question for

provided that, in the event of the Health Committee of the League of Nations, after having submitted the question for advice and report to the Permanent Committee of the Office International d'Hygiene Publique in Paris, finding that any preparation containing any of the narcotic drugs referred to in Chapter III of the Convention (being the drugs to which Part III of the Dangerous Drugs Act, 1920, as amended by this Act, applies) cannot give rise to the drug habit on account of the medicaments with which the said drugs are compounded, and which in practice preclude the recovery of the said drugs, the Health Committee shall communicate this finding to the Convention of the League of Nations, and that the Council shall communicate the finding to the parties to the Convention, and thereupon the provisions of the Convention will not be applicable to the preparation concerned: preparation concerned:

And whereas it is provided by Article 31 of the Geneva Convention that that Convention shall as between the parties thereto replace the provisions of Chapters I, III and V of the Hague Convention, which provisions are to remain in force as between the parties to the Geneva Convention and any parties to the Hague Convention which are not parties to the Geneva Convention:

And whereas by Article 36 of the Geneva Convention it is provided that that Convention shall not come into force until it has been ratified as therein mentioned:

And whereas it is expedient to amend the Dangerous Drugs Acts, 1920 and 1923, so far as is necessary to enable effect to be given to the Geneva Convention:

Be it therefore enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

as follows:—

Extension of Part I of Dangerous Drugs Act, 1920, to coca leaves and Indian hemp. 10 & 11 Geo. 5 c. 46.—

1.—(1) Part I of the Dangerous Drugs Act, 1920 (which restricts the importation and exportation of, and gives power to regulate dealings in, raw opium), shall, as amended by this Act, apply to coca leaves, Indian hemp, and resins obtained from Indian hemp and all preparations of which such resins form the base, as it applies to raw opium

opium.

(2) In this Act—

The expression "coca leaves" means the leaves of any plant of the genus of the erythroxylaceæ from which cocaine can be extracted either directly or by the cocaine transformation:

"means the dried"

which cocaine can be extracted either directly or by chemical transformation:

The expression "Indian homp" means the dried flowering or fruiting tops of the pistillate plant known as cannabis sativa from which the resin has not been extracted, by whatever name such tops are called.

Amendment of s. 2 (1) of Dangerous Drugs Act, 1920.—2. The words "and except in packages marked in the prescribed manner with an indication of the contents thereof" in subsection (1) of section two of the Dangerous Drugs Act, 1920 (which restricts the exportation of raw opium), are hereby repealed.

hereby repealed.

Amendment as to drugs to which Part III of Dangerous Drugs Act, 1920, applies.—3. The following shall be substituted for subsection (1) of section eight of the Dangerous Drugs Act, 1920, which defines the drugs to which Part III of that Act applies:—

(1) The drugs to which this Part of this Act applies are recephine, cocaine (including synthetic cocaine), ecgonine, diacetylmorphine (commonly known as diamorphine or heroin), and their respective salts, medicinal opium, and any extract or tincture of Indian hemp, and any preparation, admixture, extract or other substance containing any

proportion of diacetylmorphine or containing not less than one-fifth per cent, of morphine or one-tenth per cent, of

one-fifth per cent, of morphine or one-tenth per cent, of cocaine or ecgonine.

"For the purpose of the foregoing provision the expression 'ecgonine' moans lawo-ecgonine and includes any derivatives of ecgonine from which it may be recovered industrially, and the percentage in the case of morphine shall be calculated as in respect of anhydrous morphine."

Meaning of "medicinal opium."—4.—(1) For the purposes of the Dangerous Drugs Acts, 1920 and 1923, and this Act, the expression "medicinal opium" means raw opium which has undergone the processes necessary to adapt it for medicinal use in accordance with the requirements of the British Pharmacopeia, whether it is in the form of powder or is granulated or is in any other form, and whether it is or is not mixed with neutral substances.

(2) The definition of medicinal opium in subsection (1) of section fifteen of the Dangerous Drugs Act, 1920, is hereby repealed.

hereby repealed.

hereby repealed.

Power to exclude certain preparations from Part III of Dangerous Drugs Act, 1920.—5. If His Majesty in Council thinks fit to declare that a finding with respect to any preparation containing any of the drugs to which Part III of the Dangerous Drugs Act, 1920, as amended by this Act, applies has in pursuance of Articlo 8 of the Geneva Convention been communicated by the Council of the League of Nations to the parties to the said Convention, the provisions of the said Part III shall as from such date as may be specified in the Declaration cease to apply to the preparation specified therein. paration specified therein.

be specified in the Deciaration cease to apply to the preparation specified therein.

Amendment of s. 6 (2) of Dangerous Drugs and Poisons (Amendment) Act, 1923, 13 & 14 Geo. 5, c. 5.—6. Subsection (2) of section six of the Dangerous Drugs and Poisons (Amendment) Act, 1923 (which defines the expression "corresponding law") shall have effect as though the reference therein to the provisions of the Hague Convention, included a reference to the provisions of the Geneva Convention. Short title, extent and commencement.—7.—(1) This Act may be cited as the Dangerous Drugs Act, 1925, and this Act may be cited together as the Dangerous Drugs Acts, 1920 to 1925.

(2) This Act shall not extend to Northern Ireland except in so far as it amends the Dangerous Drugs Acts, 1920 and 1923, in relation to matters with respect to which the Parliament of Northern Ireland have not power to make laws.

(3) This Act shall come into operation on such date is His Majesty may by Order in Council appoint, and different dates may be appointed for different provisions of this Act and in relation to different countries.

Business Changes

Mr. W. E. Garlick, chemist and optician, Chesham and Chalfont, is opening new premises at Amersham

Duberly & White, dispensing chemists, Luton, are taking over the business of Mr. E. Stonnell, 40 New Bedford Road, Luton, from August 2.

ALLISON & HILL, 1 Liverpool Road, Stoke-on-Trent, have disposed of their business to Mr. S. G. Challinor, and have commenced at Redruth as G. E. Jones, Ltd.

L. LEICHNER, Berlin, makers of the Leichner cosmetics, has opened a London office at 27 Harcourt Street, Marylebone, W.1, under the management of Mr. S. Pollitzer.

Mr. T. H. Weatherell, chemist, Chesham, has disposed of his branch business at 7 Benbow Road, Harrow, to Mrs. A. Holmes, who will carry it on as a drug store from August 1.

Wills

MR. WILLIAM HARRIS COLTON, chemist and druggist, 35 Carter Knowle Road, Sheffield, who died on February 1, left estate of the gross value of £7.317 17s. 3d., with net personalty £5,787 18s. Probate has been granted to bis widow the sole accentric. to his widow, the sole executrix.

Mr. Francis Rice Jennings, chemist and druggist, 37 Hastings Road, Maidstone, who died on April 30, left estate of the gross value of £1,181 3s., with net personalty £836 15s. 4d. Probate has been granted to his widow, Mrs. Janie Isabel Jennings, of the same address, and his son, Mr. Arthur Lake Jennings, Northfield, Cleckheaton.

Recent and Coming Developments in British Pharmacy

Opening Address at the British Pharmaceutical Conference, Glasgow, delivered on July 28 by Mr. EDMUND WHITE, B.Sc., F.I.C., Ph.C.

Last year at Bath I took as the subject of my address to the Conference, "Pharmacy, Present and Future."

The attitude to be adopted by pharmacy toward the changing conditions brought about by the changes in materia medica was discussed, and it was pointed out how the decision would affect the position of the pharmacist in the possible future scheme of medical treatment. During the past year some of the developments foreshadowed have been

realised, and to that extent the future of last year is the past of the present Conference. In March last the Council decided to go forward with the proposal for the establishment of a laboratory for the biologieal examination and standardisation of remedial substances, subject to the condition that such proposal received support and encouragement from the Ministry of Health and the medical authorities con-cerned. These were forthcoming, and invitations were sent to the Medical Research Council, the General Medical Council, and the British Medical Association to appoint representatives to meet re-presentatives of the Council of your Society and confer as to the best means of establishing and maintaining the laboratory in view. The joint committee thus set up was intended to act in the first place as an advisory body, and it is now hoped that if the proposed development is brought to a successful issue we shall be able to form a permanent joint committee of similar constitution which will assist the Council and ensure

that the work will progress
on the right lines and with the active support and
co-operation of the competent medical authorities. Thus we may look forward to the coming year as one in which a momentous decision, taken this year, will be put to the test of experiment. The first meeting of the Joint Advisory Committee took place on July 9, and I trust that my successor in this chair may be able to report that satisfactory and acceptable means have been devised and put into operation for the realisation of our aspirations. Rooms in the Society's buildings have been allocated for the laboratories, and with the passing into law of the Therapeutic Substances Bill the Pharmaceutical Society will be able to meet the demand, thus created, for an institution which shall be competent to examine and issue certificates for therapeutic sub-stances requiring standardisation by biological and physiological methods. Such standards have been, in a few instances, introduced into the United States Pharmaeopœia; and there is no doubt such standards will

receive extended recognition as and when facilities are provided and shown to be reliable indications of the value and potency of therapeutic substances. Thus the value and potency of therapeutic substances. Inus the Council may hope to justify one of the objects outlined by the founders of the Pharmaceutical Society in 1841—viz., "for the purpose of advancing chemistry and pharmacy," which was confirmed by its Royal Charter of Incorporation in 1843. In making its decision to go forward with such

forward

Mr. EDMUND WRITE.

[Blake Studios Chairman of the British Pharmaceutical Conference

forward with such a scheme, your Council has had to consider (1) the true functions of Pharmaceutical Society; (2) the responsibility involved; (3) the cost; and (4) the resources of the Society. Last year I dealt with the functions of the Society, and have since had reason to believe that the views then set forth have met with wide and ready acceptance from those concerned with the future welfare of pharmacy. The attitude of the medical authorities has been so encouraging that I have no doubt the establishment and conduct of this laboratory is clearly included within the true functions of our Society; and. I believe, will enhance not only the reputation of the Pharmaceutical Society but of everyone following the calling of pharmacy. As to the cost, reliable figures are not yet available, but the resources of the Society are more than sufficient to finance, without unduly depleting re-serves, any development at present under considera-tion. In any discussion relating to the employ-ment of the Society's funds, it must never be forgotten that the Pharma-

ceutical Society was established under statute to carry out certain functions relegated to it by the State. In the exercise of these functions the Society receives a portion of its income, and, in my opinion, such funds can be most fitly expended in justifying and extending the confidence which has been reposed in us. Those of you who remember Michael Carteighe will know that he was the great protagonist for this attitude concerning the public duties of the Society, and the Council of the Society has always acted wisely in recognising its responsibility, and will, I trust, continue to do so. In Michael Carteighe's time the resources of the Society were much smaller than to-day, but the long views he held are now amply justified. I have dealt thus fully with the question of ways and means because I want to carry everyone with me in believing that the objective is desirable, and with ample funds, expenditure, within those means, is justified.

GROWTH AND DEVELOPMENT OF THE SOCIETY

I remember, during the years I was President of the Society, that I was among the optimists concerning the future funds and membership of our Society. You know the proverbs concerning prophets, but I feel some satisfaction in finding to-day that my optimism has been justified in both particulars. I remember that I expressed the hope that the membership would reach 10,000 during my presidency, and declared that I had no anxiety concerning the financial future of our body. Moses was only permitted to view the Promised Land from Mount Pisgah, but I have lived to see the fulfilment of my hopes, and the membership of the Pharmacentical Society is to-day over 11,000. It will surely be an encouragement and inspiration for the pharmacist to feel that his own Society is thus dealing with this extension of the field of materia medica, and it should extension of the field of materia medica, and it should confirm the pharmacist's claims to be regarded as the fit and proper person to dispense them. With a voluntary body like the Pharmaceutical Society an appeal on ethical grounds to join the Society can only be made with that measure of success corresponding with the ethical sense of the community to which the appeal is read. is made. To what, then, can we attribute the continual increase in our membership, and how can we best ensure its continuance? I believe the increase in membership is due to the approval by pharmacists, as a body, of the management of the Society's affairs, and the best means of securing its continuance is to pursue a policy which shall enhance the public reputation of the Society as a progressive body, so that pharmacists will feel it a reproach not to be enrolled in its membership. The prominent part which we are now taking in international pharmacy emphasises the importance and value of the steps made this year in the advancement of pharmaceutical education and research at home. I refer, first, to the establishment of the degree of bachelor of pharmacy instituted by the London University under conditions which will enable the Society to accept it as a registerable qualification; and, secondly, to the raising of the standard of the curricu'um and examination for the qualification of a pharmaceutical chemist. We have too long been behind our confreres on the Continent in this matter, and have run some risk of falling behind the general advance in education. Prominent among delegates from other countries to the international pharmagates from other countries to the international pharma-ceutical conferences have been holders of pharmaceutical degrees and professorships of the leading universities of Europe. Education in this country, as abroad, may be classified as elementary, secondary, and university. The fact that the London University, probably the greatest in the world, has recognised pharmacy as a branch of learning necessitating the provision for facilities for the highest form of education and research will do for the highest form of education and research will do much to place pharmacy here in its proper relation to the other arts and sciences.

INTERNATIONAL RELATIONS, PROBLEMS, AND POLICY

Other problems for the future of pharmacy have been suggested by recent happenings. Last week I attended with two of the past-Presidents of the Society (Mr. Neathercoat and Mr. Sargeant), and Mr. Linstead, the assistant secretary, as delegates of our Society at the meeting of the International Pharmaceutical Federation at Lausanne. In September I am to attend, as a delegate appointed by the British Government on the nomination of the Council, at the International Conference in Brussels for the standardisation of potent drugs. Two years ago Miss Margaret Buchanan, during a visit to Canada, investigated the subject of pharmaceutical education in that Dominion. At the meeting of the Conference in London two years ago Mr. W. the Conference in London two years ago Mr. W. Butchers (registrar to the Pharmacy Board of Victoria) was present, and accentuated some of the variations of pharmaceutical practice in Australia. This year Sir William Glyn-Jones has visited Canada and the United States, and, as might be expected, has returned with much information relative to pharmacy in those coun-tries. The Health Department of the League of Nations is considering such subjects, from an international point of view, as the standardisation of arsenical preparations, like salvarsan; the biological

standardisation of certain drugs, such as ergot, and the regulation of the traffic in narcotic drugs. The International Pharmaceutical Federation has had under discussion the following subjects: The manufacture and distribution of proprietary medicines, international nomenclature of drugs and chemicals, traffic in narcotics, practice of pharmacy in rural areas, unification of the methods of standardising drugs. The Brussels conference will consider: Revision of the decisions taken by the first Conference in 1902 concerning the unification of the formulas of potent drugs, unification of the formulas of other potent drugs not already dealt with, unification of the methods of chemical analysis of certain drugs, unification of maximum doses, biological standardisation of drugs, distinctive containers for medicaments sation of drugs, distinctive containers for medicaments for internal and external use, creation of an international pharmacopoeial bureau. At the Bath Conference last year our President, Mr. Rowsell, opened a discussion on the manufacture and sale of proprietary medicines. No decision was reached, but the subject was referred to the Council for further consideration. In some quarters there was obvious reluctance to deal with what is admittedly a difficult problem, although it was generally agreed that evils existed in the traffic in some substances of this nature, though their extent is a quessubstances of this nature, though their extent is a question upon which opinions differ. It was evident that vested interests were present—often admittedly legitimate—which would have to be considered. At the Lausanne conference the subject was also discussed, and I learned that pharmacists on the Continent regard with considerable apprehension the influence which proprietary medicines are exerting upon the practice of pharmacy. In my opinion legislation on this subject will not be long delayed, and I consider that the Pharmaceutical Society cannot be content to allow such legislation to be initiated, much less carried out, without taking an active part in it. We must insist that we should be regarded as the expert body to be consulted, and we should be lacking in our public duty if we were not prepared to advise the Government in matters affecting the public welfare, while taking care that vexatious legislation was avoided as much as possible. The Brussels conference is being held on the invitation of the Belgian Government, a previous conference of the same nature having been held in 1902. Certain decisions were arrived at in 1902 which have been very generally accepted by the authorities of the countries whose representatives attended the conference, resulting in the unifi-cation of potency of many important drugs and their preparations. The British Government has appointed on this occasion a direct nominee of the Pharmaceutical Society as one of its delegates, and it is in this capacity that I shall attend the conference. This recognition that I shall attend the conference. This recognition of the Pharmaceutical Society for the first time by the Government in relation to pharmacopæial matters has surely been earned by the Society's attitude towards its responsibilities in pharmaceutical affairs. On the subject of the unification of potency of powerful drugs I may mention that Professor Greenish contributed last week to the Lausanne conference a paper on the "Unification of the Methods of Assaying Potent Drugs." His contribution was entirely approved, and is really a natural contribution was entirely approved, and is really a natural corollary to the objects of the Brussels conference. It is obvious that after agreeing upon standards it is necesby which the proportions of active principles shall be determined. This long catalogue serves to show how things are moving in the world around us, and the Pharmaceutical Society of Great Britain must take its share in directing and influencing decisions which may profoundly affect the practice of its members. But, can one not foresee the possibility of the English-speaking communities making some effort for common agreement on the subjects mentioned above?

THE ADVANTAGES OF UNIFICATION

Unification of old methods and customs in various countries presents many difficulties. But what of the new? Is it not desirable to avoid divergences at the outset? Science is now said to be international, to its great advantage. Perhaps we can, by the free interchange of ideas, preserve what is best, learn from the experience of other communities, and come to an international agreement on certain cardinal points in the practice of pharmacy. A glance at the subjects for discussion mentioned above will show that every one is of common interest in all civilised communities, and many others might be cited. Two points of difference in British and Continental pharmacy may be mentioned. The first is the custom of taking solids by weight and liquids by measure, which is almost universal in English liquids by measure, which is almost universal in Englishspeaking communities, whereas in Continental practice liquids and solids are usually ordered by weight. With us weight-volume percentage solutions are usually employed, while percentage solutions in most other countries are true percentage solutions—that is, weight in weight. This leads to endless differences-sometimes important—as in the case of a 1 in 10 tincture. Nomenclature also varies: thus natrium chloratum is with us sodium chloride, and not chlorate. The unification of chemical methods of assay is highly desirable not only from an international pharmaceutical standpoint, but also for purposes of international commerce. The biological standardisation of drugs and the traffic in narcotic drugs, now being dealt with by the Health Department of the League of Nations, will probably be settled on an internationally agreed basis.

A FEDERATION OF THE ENGLISH-SPEAKING PEOPLES

While international agreements in pharmaceutical methods and practice may be desirable, any large measure of agreement is difficult to attain immediately. But I really believe a serious effort to unify pharmacy in the English-speaking communities would yield encouraging results at once. You have only to compare the British Pharmaceutical Codex with the U.S. Pharmacopeia to see how British and American practice run on great overseas Dominions, such as Canada, Australia, New Zealand, and South Africa, should be invited to take a more active share in moulding the destinies of pharmaceutical practice as reflected in our imperial and national pharmacopeias. I say "invited" advisedly, because I believe an invitation given now by the Mother Country would frankly recognise the growing importance of our Empire outside Great Britain. Anything we can do to bind closer the ties, not only between the Mother Country and the Dominions but between the Dominions themselves, is surely worth doing. Much can be done imperially to create a high standard of ethics, both com-mercial and professional, to codify administration of pharmacy law, to raise the standard of education to a high level, to encourage reciprocity in professional qualification, and so to bring about free and unrestricted intercourse between all parts of the Empire. In this way we shall assist in encouraging inter-Empire trading, which many maintain will be the keystone for our future prosperity. Looking ahead, one may visualise an Empire Pharmaceutical Conference taking the place of a British Pharmaceutical Conference, and attended, wherever it may be held, by delegates from all parts of the British Empire. Again risking joining the prophets, I believe this idea is capable of realisation, and that we shall see the various pharmaceutical societies sending their properly appointed delegates to an Empire Conference—or even more—to a Conference of English-speaking communities, which would include the United States of America Would it he going too for to suggest that America Would it be going too far to suggest that what is here outlined for pharmacy would be good for extension to all trades and professions, thus creating an atmosphere and a community of thought and practice throughout this Empire of ours which would act far more effectually as a cementing influence than any amount of pious resolutions or legal enactments?

LIME TEA.—Mrs. A. K. Woodward writes to "The Times" that it would be of interest if some medical man would state whether dried English lime flowers are not equally efficacious in certain allments as the Continental variety. There is, however, at present an entire shortage of the supply, which apparently comes exclusively from France and Belgium, the 1924 harvest being almost exhausted. England possesses a considerable number of lime trees, and if a good supply of the flowers were gathered within the next few weeks it should ease the situation for 1926.

Personalities

In celebration of the birthday of Lady Boot, the Florence Boot cottages erected by Sir Jesse Boot in honour of his wife were inaugurated on July 28.

ALDERMAN H. M. BLACK, Ph.C. and optician, deputy-Mayor of Brighton, has suggested that the promenades at Brighton should be tinted green, so as to lessen eyestrain.

MR. W. J. Moody, B.A., M.B. Cantab., son of Mr. W. J. Moody, Popham Drug Stores, Islington, London, N., has passed his M.R.C.S. and L.R.C.P. He is twenty-two years of age.

On the occasion of his marriage, which took place on July 30, Mr. J. T. P. Jeyes has been presented by the staff of Philadelphus Jeyes & Co., Ltd., chemists, Northampton, with an inscribed silver salver.

Mr. F. W. Fletcher, F.C.S. (Fletcher, Fletcher & Co., Ltd.), the announcement of whose golden wedding is made elsewhere in this issue, has given £1,000 to the Tribute Fund of the Nation's Fund for Nurses. The Tribute Fund deals with the relief of nurses who are ill or in distressed circumstances.

Mr. T. Edmondson, chemist and druggist, late chairman of the Penrith Urban Council, at the meeting on July 22 asked the Council to accept his portrait, and that of the late Mr. I. Lowthian, for inclusion in the collection of photographs of past chairmen. In accepting the photographs, the chairman, Mr. R. McVittie, referred to the valued services rendered by Mr. Edmondson to the public life of the town, and particularly to his efforts in raising the money for the acquisition of the public park.

The Rt. Hon. The Lord Provost of Glasgow (Mr. M. W. Montgomery), whose portrait appears elsewhere in this issue, has been a member of the Corporation of Glasgow since 1902, and has a long record of notable civic service. During his career as a councillor, which included a term as a magistrate, the Lord Provost held several important convenerships, including that of the Gas Committee, and for several years he acted with marked ability as chairman of the Valuation Committee. Prior to entering the Town Council Mr. Montgomery had a large and varied experience of public work. He occupied the position of speaker of the South Side Parliamentary Debating Association for the long period of thirty years, and the discharge of his duties in this position has proved of great value to him in his subsequent career. In his early years he was a member of the Govan Parish Council, and took an active interest in the Young Men's Christian Association and the Foundry Boys' Religious Society. His occupancy of the civic chair presents some unique characteristics, as he is at present not only the chief magistrate of the city, but also the Deacon of the Incorporation of Bonnetmakers and Dyers, and the Master of the Trades House Masonic Lodge. It has seldom occurred in the history of Glasgow that the Lord Provost filled such a plurality of important offices. The Lord Provost is a lucid and logical speaker, and is universally popular with his colleagues of all shades of opinion and the citizens as a whole.

Recent Patents

Abstracts of specifications of recently-granted patents for inventions. The complete specification (1s. each including postage) of any British patent can be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, on quoting the name of the patentee and the number of the patent.

Skin Protective.—A protective compound for the skin, consisting of a mixture of bentonite, soap and water. (D. R. Kellogg. 236,069.)

Sympathetic Ink.—A printing ink of the invisible type, consisting of a mixture of phenolphthalein, alcohol, carbon tetrachloride, and glycerin. (A Rogers and the Mimo Corporation. 235,922.)

Farnesol.—A process for the synthetic manufacture of farnesol, consisting in treating nerolidol with glacial acetic acid, acetic anhydride, or a mixture of acetic acid and chromium trioxide. (M. Naef & Co. 213,251.)

Births

Notices for insertion in this column must be properly authenticated.

KNIGHT.—On July 23, the wife of G. W. Knight (Windle & Co., chemists, 452 Edgware Road, London, W.2), of a son.

Marriages

Lengden—Hooper.—At the Parish Church, Cheltenham, on July 15, by the Rev. A. E. Clease, M.A., William Albert Victor Lengden, M.P.S., son of Mr. Alfred Lengden, M.P.S., 337 High Street, and "Rothesay," Cheltenham, to Eveline Florence Greville Hooper, eldest daughter of Mr. and Mrs. Hooper, Leckhampton.

Ness—Docherty.—At Windsor House, Edinburgh, on July 21, by the Rev. J. Marshall Robertson, Thomas Russell Ness, second son of Mr. Thomas Ness, chemist and druggist, Tarbolton, to Ada Crosbie, eldest daughter of Mr. and Mrs. Docherty, Edinburgh.

PHILLIPS—BLACK.— At St. James' Parish Church, Tredegar, on July 14, Benjamin Leonard Phillips, youngest son of the late Alderman Ben Phillips, C.C., to Everilda Victoria Black, only daughter of Mr. C. J. Black, The Pharmacy, Margan Street, Tredegar.

Golden Wedding

FLETCHER—CHAMPION.—At St. Mary's, Wallingford, on July 29, 1875, by the Rev. C. F. Thorndike, recter, F. W. Fletcher, F.C.S., of Hampton, Middlesex, second son of I. Brackstone Fletcher, Totton, Hants, to Annie, only daughter of the late Robert Waite Champion, of "The Elms," Wallingford. Present address: "Windsmill," Enfield, Middlesex.

Deaths

Cave.—At his residence, 33 Avondale Road, Southport, on July 28, Mr. James Robert Cave, retired chemist and druggist, aged sixty-two. Mr. Cave was a native of Market Rasen, and he was apprenticed to Mr. R. O. Wood, Windsor. After qualifying in 1884, and gaining an extended experience, Mr. Cave went to Southport, where he started on his own account in Nevill Street, and, in addition, held the position of dispenser at the Southport Infirmary. He held this appointment about thirty years. Mr. Cave's hobby was photography, and years ago he was an active member of the Southport Photographic Society. He was perhaps the first man to introduce cinema films to Southport, for he secured these and lent them out on hire at a time when "moving" pictures were a novelty. Some years ago Mr. Cave's business was formed into a limited company, and branches were opened in Lord Street, Wennington Road, Botanic Road, and at Crossers. Mr. Cave retired three years ago.

DAVIES.—At Clydach, Swansea Valley, on July 21, Mr. Richard Llewelyn Davies, chemist and druggist, after a short illness, aged fifty-eight. Mr. Davies, who qualified in 1892, leaves a widow and four sons.

qualified in 1892, leaves a widow and four sons.

DIX.—At a nursing home in Liverpool, Mr. Henry Walter Dix, chemist and druggist, Commercial Street, Pontypool. Mr. Dix, who was greatly esteemed by his pharmacist colleagues, was chairman of the Monmouthshire Association in 1917, and a member of the Pharmaceutical Committee from its inception. The funeral took place at Trevethin churchyard, and among the pharmacists present were Messrs. H. O. Thomas, Abersychan; W. Parry Williams, Bargoed; F. Clarke, Newport; T. J. Badgett, Newport; W. H. Williams, Blaenavon; and B. Thomas, Cumbran. A floral tribute sent was inscribed: "In admiration and remembrance from Monmouthshire pharmacists."

Gosnell.—On July 27, after eight months' illness, cheerfully borne, Mr. C. P. Gosnell, aged seventy-two. The late Mr. Gosnell was associated with the company of John Gosnell & Co. since its formation, and was previously a partner in the old firm of John Gosnell & Co., his activities extending over fifty years.

Trade Notes

Farley's Midget Cash Till, which costs 20s., carriage paid, is advertised in this issue by Farley's, 227 Old Street, London, E.C.1.

KAYLENE, a colloidal hydrated silicate of aluminia, is distributed in this country by H. E. Curtis & Son, Ltd., 7 Mandeville Place, London, W.1.

ARTHUR H. Cox & Co., Ltd., manufacturing chemists, Brighton, are closing their works from August 3 for the annual holiday of a week. Urgent orders will, however, be executed.

CUPIDOL, a preventive and application for insect bites, is a good seller just now among those who are leading an outdoor life. It is a preparation of Evans Sons Lescher & Webb, Ltd.

ART GLASS CONTAINERS.—Wood Brothers Glass Co., Ltd., Barnsley, specialise in g'ass containers for toilet preparations. Artistic designs and art colours have been adopted to these containers.

KINOSALVE.—Mr. Robert Blackie, manufacturing chemist, Shen Works, Tower Bridge Road, London, S.E.1, is offering agencies for Kincsalve, a veterinary preparation of many uses on the farm.

COLGATE & Co., 46-47 Holborn Viaduct, London, E.C., call attention to the huge new illuminated sign advertising Colgate's dentifrice which has been erected on the side of the Thames. It is calculated to bring more customers to chemists for the dentifrice.

"Dependable" Brand.—Britton, Malcolm & Waymark, Ltd., 38 Southwark Bridge Road, London, S.E.1, who supply the "Dependable" brand india-rubber hotwater bottle, are prepared to offer certain quantities of these at the prices ruling before the recent rise in rubber.

CREPE BANDAGES.—F. W. Folkes & Co., Frome (London agents: T. J. Sanderson & Co., 51 and 52 Fore Street, E.C.) are this week advertising to wholesale dealers the "Somerset" double warp crepe bandages. New machinery has been installed to enable the firm to compete with any manufacturer.

STAPHAR.—Dick, Coates & Co., 41 Great Tower Street, London, E.C.3, are sole agents for the United Kingdom for Staphar, a disintegrated mast-staphylococcus centralising vaccine, originated by Professor Strubell. Staphar is indicated in furuncolosis, bubos, abscesses, acne and eczema, and is administered by subcutaneous or intramuscular injection.

Scottish advertisers.—The occasion of the British Pharmaceutical Conference at Glasgow is utilised by Scottish manufacturers and wholesa'e houses to advertise in the blue supplement inserted in each copy of this issue. The business houses making announcements are: W. Davidson, Ltd., Aberdeen; Harley, Perth; W. Hill & Co., Glasgow; Jackel et Cie (of Paris), Ltd., Glasgow; Johnston & Adams, Dundee; G. F. Merson, Ltd., Edinburgh; Mould & Tod, Ltd., Edinburgh; Munro, McLaren & Sutherland, Glasgow; W. Paterson & Sons, Aberdeen; Raimes, Clark & Co., Ltd., Edinburgh; T. & H. Smith, Ltd., Edinburgh and Glasgow; and Isaae Spencer & Co. (Aberdeen), Ltd.

Information Department

INFORMATION WANTED

Postal or telephone information with respect to makers or first-hand suppliers of the undermentioned articles will be appreciated:

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H/267.	Amphroleum	L/287.	" Royal	Fegn ''	рет-
B/207.	Aseptoplasm Clem glass nasal douch	C/287.	fume Serpolet moths	liquid,	
B/217.	Clem glass nasal douch	\$	moths		

Perfumery is extensively used in Jamaica, and is a valuable trade. Imports in 1924 show a reduction of about 20 per cent. to £21,055, of which the United States is credited with £14,283, the United Kingdom with £2,357, and Canada with £209.

Observations and Reflections

By Xrayser II.

Your Important Article

on the appliances difficulty is worthy of the most serious consideration, and its careful perusal will well repay every chemist on the Insurance panel. It is not easy to comprehend why there should be any real difficulty about the supply of appliances. so far, at least, as concerns knowledge of what may be supplied. As you point out, the position is so clear-cut. In the Second Schedule of the Drug Tariff there is a list of appliances which may be ordered and supplied free of charge to insured persons. Nothing outside that list is allowed. Obviously, therefore, the position is quite a simple one for chemists who will take the trouble to study the list, keep it at hand for ready reference, and decline to dispense prescriptions ordering any appliance not named in, or covered by the terms of, the Schedule.

Difficulty May Arise

if the chemist has only a hazy notion of what may or may not be supplied, and if he has not got a copy of the Second Schedule in an accessible place, available for ready reference. The simplest remedy for such a state of affairs is to have a copy of the Schedule pasted on a card which can be displayed in a handy yet prominent position near the dispensing counter, or keep a book-mark at page 277 of The Chemist and Druggist Diary. Some chemists, I believe, are unduly nervous about pains and penalties which they think they may suffer if, through inadvertence or misreading of the Schedule, they infringe the terms of their contract by refusing to supply particular appliances. Rather than have any bother, they supply what is ordered, without question, and hope for the best. If, then, as not infrequently happens, the article is disallowed, they simply have to grin and bear the loss. But there is no occasion for anything of the kind to happen, since it is usually easy to address an inquiry on the telephone to the secretary of the Pharmaceutical Committee for the area, and it is his business to render all the assistance he can in-such cases.

That a Delicate Situation

arises when a chemist finds himself in the position of having to explain that he may not supply without payment what the doctor has ordered, is a point that is sometimes raised, and one is bound to sympathise with the chemist placed in such a position. But the doctor is supposed to know what he may or may not order for an insured person and, as stated in your article, it is a mistake to suppose that any odium attaches to the chemist merely because he refuses to supply something that he knows will not be paid for. Much may depend, so far as concerns the doctor's view of the matter, upon the manner in which the chemist intimates his inability to supply what the doctor has ordered. Tact is necessary, here as in so many other directions, but chemists as a class are usually equal to the situation in cases of this kind. If doctors make a habit of ordering appliances which are not allowed, it should not be difficult to secure tactful handling of the matter by official means, without the names of chemists affected being disclosed.

Why the Retail Pharmacists' Union

should wish chemists to be allowed to supply to insured persons any appliance ordered by the doctor is incomprehensible to me. Very little consideration is needed to show that such an extension of the list of prescribed appliances might have a boomerang effect, as it could bardly fail to involve chemists in serious loss. It is to be remembered that all allowed appliances must be supplied at cost, with only a miserable dispensing fee as remuneration for stocking and supplying them. This fee usually counts as little or nothing when compared with the chemist's ordinary profit on the sale of the appliances. Surely chemists would be better advised to leave matters alone in this respect, and try to effect sales of extra appliances that may be required. One of the things that has belped to make it worth while going on the panel has been the opportunity provided for selling at a profit articles that insured persons might be induced to purchase while waiting for their medicine to be dispensed. When, therefore, dispensing medicine that seems

to suggest the use of a particular appliance, the suggestion that this should be purchased seems quite a natural one.

It Might Pay

to supply at cost camel-hair pencils and a few other appliances at present disallowed, in consideration of a dispensing fee being allowed in each instance, but no sane individual would wish to supply on such inadequate terms trusses, clinical thermometers, bed-pans, surgical belts, and the innumerable other articles that are recorded as having been wrongly ordered by doctors for insured persons. One would think that this point can hardly have been overlooked by those responsible for preparing the statement of evidence submitted to the Royal Commission by the R.P.U., and we are therefore forced to the conclusion that extravagant and fantastic claims have been advanced in the name of panel chemists for some supposedly diplomatic reason. The claims are extravagant because the nation cannot afford to meet them; they are fantastic because it is more than doubtful if panel chemists would be any better off is the claims were met. What chemists need is increased remuneration for the service they now render, but the Royal Commission has been told nothing about this, and a wonderful opportunity has thus been missed.

Why Is It

that the interests of chemists suffer so badly now-adays at the hands of their chosen representatives? Is it because men of the type that make good statesmen and negotiators are no longer willing to represent us? Clever diplomats came from the management of chemists' shops to organise and represent pharmacy in bygone days, and it is noteworthy that those men did not allow paid officials to dominate them or dictate policy. Are there no clever diplomats in chemists' shops to day? I am loth to believe it, and am almost forced to conclude that present-day conditions of representation do not tempt them. It may be, however, that the spirit of devotion to our craft is no longer so potent as it was in the time of Jacob Bell and many of those who followed him. The need of close attention to one's own business is undoubtedly greater to-day than heretofore, and that is probably why the care of our interests is drifting more and more into the control of permanent officials who—to put it mildly—are lacking in the knowledge of profitable diplomatic methods.

"Woman,"

I once heard a Methodist local preacher declare from the pulpit, "Woman, my friends, is a class of character we can't help admiring. If a woman says she'll do a thing, depend upon it, my friends, by woman that thing will be done." Well, some years ago, woman declared her intention to be emancipated (whatever that may mean), and, according to a well-known woman pharmacist, emancipated she now is. I doubt, indeed, whether she is quite so emancipated as that lady supposes. Eman-cipation and golf go very well together, but hardly emancipation and "dainty nickelled powder-puff containers." These seem to indicate some remnant in the female of our species of the original Eve, whose bid for emancipation resulted in the more complete subjugation of her sex. I have no doubt that a stoutly-built lady, flushed by a well-contested foursome, feels the need of a powder-puff, but for what purpose? These things, surely, are part of the armoury whereby woman of old prosecuted her siege against the masculine heart—"puffs, powders, patches, Bibles, billetdoux"; she may have discarded some of them, but while she retains any surely she proclaims the fact that the fortress has not yet surrendered, and she still has need of all her art even to maintain the siege? I hope that my lady informant is wrong, too, in thinking that Scottish ladies are in this respect behind their London sisters. From some poems contributed by ladies to the third series of "Northern Numbers," an annual of Scottish verse, I should judge that in the North they are as advanced in the direction of emancipation as they have any need to be. They speak, at any rate, with a frankness that would have startled our mothers; some, even, of their themes would have been regarded as unmentionable fifty years ago. It should be added that there is perhaps no reason why they should be, and that if the beauty of the singing can justify its boldness it is justified.



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Editorial Articles

A Bird's Eye View of the Conference Papers

The British Pharmaceutical Conference first met in Glasgow in 1876 with Professor Theophilus Redwood as president, and again in 1897 with Dr. Charles Symes in the chair. The Conference in 1876 was in the heyday of its prosperity with about 2,600 members and a substantial excess of income over expenditure. This year the Conference, now an activity of the Pharmaceutical Society, meets again in the largest Scottish city. The head of the Conference is now the President of the Society for the year, a chairman taking charge of the science section. Under the original plan the President's address was the important event of the Conference, and it is interesting to sean those of Professor Redwood and Dr. Symes, both pharmaceutical experts, but it would serve no useful purpose to resuscitate the ideas put forth. This year Mr. Edmund White, who is chairman for the second year, finishes a short address on a new plea for internationalism in pharmacy. It

looks as though the enthusiasm of the Society's secretary had infected him with the need of binding the Empire together, if not for price protection for Empire unity of aims in pharmacy. Other addresses which may be looked upon as emanating from the Pharmaceutical Society and expressing the official views are by Mr. F. Pilkington Sargeant, Mr. John Keall, and Captain H. A. Hill. The first deals with the question of revising the Charter of the Society, or, as Mr. Skinner prefers to put it, the need of a Supplemental Charter. Mr. Sargeant went over the familiar ground of the origin of the Pharmaceutical Society and the Pharmacy Acts, and made some suggestions as a basis of discussion. These included one for an annual registration fee, so dear to the hearts of officials, and power to remove persons from the Register. Mr. Keall's paper dealing with the Dangerous Drugs Acts and Regulations and the Labelling Order was a rehash of these subjects, without any new matter or suggestions. Nothing was said about the requirements of the Geneva Convention, which foreshadowed more legislation, and which in fact materialised in a Bill introduced into the House of Lords last week. Captain H. A. Hill, secretary of the Ex-Service Pharmacists' League, addressed a meeting on Tuesday afternoon on the development of pharmaceutical service in the Army, and outlined a scheme for the formation of a Pharmaceutical Volunteer Reserve. Following our usual custom, we give brief abstracts of the papers presented to the Conference, longer abstracts being given in the report of the proceedings. It may be remarked that several of the papers reach a high level of research and show that authors still prefer to present the results of their work at the annual gathering. We also note that Mr. Dott, who read a paper on opium preparations thirty-eight years ago at Glasgow, has a paper this year on morphine hydrate. This is surely a record in such matters. In the interval Mr. Dott has regularly given papers on opium alkaloids, the results of his life work, and exhibited a consistently high standard in all that he has produced. C. M. Caines and N. Evers were able to establish, as a result of their observations, that the increase in specific gravity in Easton's syrup during PHARMACY keeping is attributable to inversion of the sugar, as is set forth in their communication on The Increase in Specific Gravity of Easton's Syrup and Syr. Ferri Phosph., B.P., on Keeping. As a result of a series of comparative tests, F. J. Dyer and Miss Kathleen M. Metcalfe suggest, in their communication A Note on Oleated Mercury, a method for the preparation of a product of constant composition. In the course of their experiments the authors found that alcohol is the best distributive medium for triturating the mercuric oxide. F. J. Dyer and R. Melville contribute Some Experiments on Phosphorus Pill, B.P., and derive the greatest satisfaction from their fifteenth and last formula, consisting of phosphorated suet, powdered liquorice, glucose, and carbon disulphide. Members who possess the C. & D. for 1894 (II, p. 203) or the "Year-Book" relating to the Conference of that year, may be interested to compare the similar formula then arrived at, and to notice that a process on parallel lines had been devised in 1878. In a paper on The Testing of Insurance Dispensing G. D. Elson gives statistics of unsatisfactory dispensing in Salford from the year 1919 onwards, suggests two amendments to the Sale of Food and Drugs Acts, and criticises certain features of the Ministry of Health scheme for testing dispensing. That the effective use of antiseptics depends upon a proper knowledge of chemistry is stressed by F. Wokes in his paper on The Use of Antiseptics in

stitute a powerful argument in favour of the establishment of an adequate Army pharmaceutical service. D. B. Dott, in his Note on Morphine Hydrate, discusses the behaviour of this substance on drying, PHARMAa point of particular importance in connec-CEUTICAL tion with the interpretation of the require-CHEMISTRY ment of certain foreign pharmacopæias that opium preparations should vield a definite percentage of morphine when weighed after drying at 100° C. An unfortunate error in the British Pharmaceutical Codex, 1923, is discussed by B. F. Howard and O. Chick in their paper on Tests for Solubility of Quinine Sulphate in Dilute Sulphuric, Nitrie and Phosphoric Acids, in which they proved, basing themselves on experimental data, that the solubility standards described in this work cannot be attained; this they attribute to an oversight in not taking into consideration the reduced strengths of the acids in question when framing the monograph on quinine sulphate. In their communication, Notes on the Quinine Sulphate Monograph of the B.P. Codex, 1923, B. F. Howard and O. Chick point out that the slight variation in the wording of the test for cinchonidine and other alkaloids between the British Pharmacopæia and this work has the effect of introducing a higher standard of purity for this salt than that officially established by the Pharmacopæia, a fact which is liable to be a cause of confusion. A valuable record of progress in micro-chemistry is contributed by W. M. Cumming and D. G. Brown, who, in a paper entitled The Identification of Alkaloids, describe a new method of micro-analysis, based on the microscopic examination of the crystalline formations of the hydroferro- and hydroferri-cyanides of certain alkaloids and organic bases. In their paper, A Note on the Official Process for Assaying Galenicals of Hydrastis, H. B. Mackie and H. A. Cleary discuss the chemistry, with special reference to colloid chemistry, of the separation of berberine and hydrastine and the rôle played by potassium iodide. As a method of identification, particularly of alkaloids, the use of micro-analysis is rapidly gaining in popularity, chiefly on account of its many advantages. C. W. Maplethorpe and N. Evers have determined the melting points and solubilities of a series of alkaloidal picrates, and their results, embodied in a paper entitled The Picrates of the Opium Alkaloids. mark a practical contribution to this method of analysis, based on experimental evidence. The results of a series of investigations to determine the conditions responsible for the differences in the density of bismuth carbonate were described by A. J. Jones, in his paper entitled Bismuth Carbonate: Some Factors Affecting its Physical Condition, in the course of which he established that the concentration of the sodium carbonate solution and the temperature at which the reaction is carried out are chiefly responsible for the density of the resulting precipitate. In their paper, Cochineal, the Utility of Assay Methods in the Estimation of Comparative Colour Values, A. O. Bentley and S. Meakin point out that the colour of solutions of cochineal vary according to their hydrion concentration. They contend that the ANALYTICAL amount of cochineal used in the official CHEMISTRY tincture is unnecessarily high, and suggest a formula which includes 5 per cent. of cochineal and an acetate buffer mixture to control the colour. A. J. Jones, in his paper, The Colorimetric Estimation of Benzoic Acid in Cordials, etc., gives a practical test for determining the presence of small amounts of benzoic acid in "soft" drinks, based on the formation of the ammonium salt of m-diamino-benzoic acid, and the comparative intensity of the colour of its

War. The facts adduced in this communication con-

up to the present suggested for The Estimation of Small Amounts of Reducing Sugars in Urine is contained in the communication read by F. Wokes. Apart from describing an adaptation to urines of S. W. Cole's micromethod of estimating reducing sugar in blood which will command the attention of all engaged in biological analysis, the paper embodies the results of much painstaking research work, and the author's observations and criticisms should prove of considerable value to biochemists. The best traditions of the days of Britain's famous pharmacognosists are perpetuated in the exhaustive and careful examination of a large number of species of Artemisia, including many original specimens, described by T. E. Wallis and E. J. Mowat in their paper, True and False Santonicas. MATERIA MEDICA Their painstaking studies have enabled them to formulate the diagnostic characters of genuine wormseed; at the same time were able to place beyond doubt the botanical source of genuine commercial wormseed. The empiric use of lemons for their antiscorbutic properties dates back at least a couple of centuries, and now that we know the cause of scurvy the paper presented by S. G. Willimott and F. Wokes on The Vitamin Content of Cortex Limonis B.P.-Preliminary Note marks a further contribution towards the elucidation of the rôle played by the accessory food factors. They were able, as a result of a highly interesting series of experiments, to demonstrate that official lemon peel contains an appreciable amount of vitamin. The title of K. Bullock's communication, A Chemical Examination of the Oleoresin of Indian Valerian Root, indicates the subject of an exhaustive invostigation undertaken to fill a lacuna in our knowledge of the constituents of this variety of valerian. The chemistry of plant-tannins still offers many problems, but possibly the very complex nature of this subject acts as a deterrent to many investigators. A. H. Ware, in his paper on The Identification by Chemical Methods of Drugs Containing Tannins, describes a series of interesting tests for determining aromadendrin and kino-yellow, and a'so tests for the definite classification of bodies according to the combination in which tannin is present. Under the title, The Structure of Coscinium, G. R. A. Short presents a communication embodying the results of an exhaustive examination of the distinguishing features of this drug. histological investigation of coscinium has hitherto been undertaken, Mr. Short's paper forms a valuable contribution to our knowledge of its characters—macroscopic, microscopic and anatomical-which will be welcomed by all pharmacognosists. In his paper, West Australian Sandalwood Oil, H. Finnemore describes the botanical source and chemical constituents of this oil, as well as the characters by which it differs from East Indian oil. We specially recommend a careful perusal of the longer abstracts published elsewhere in this issue, together with the discussions which the papers provoked. Those who were not able to be present will thus obtain the educational advantages which are the chief object of the British Pharmaceutical Conference.

solution. An exhaustive critical survey of the methods

The New Swedish Pharmacopæia

THE new, tenth, edition of the Swedish Pharmacopæia, to which reference has already been made (C. & D., July 4, p. 4), has now been issued, and from January 1, 1926, replaces the work published in 1908, as well as the Military Pharmacopæia of 1903 and the Veterinary Pharmacopæia of 1880. Outwardly, it is a larger and more bulky volume than the preceding edition, containing 624 pages, whereas that of 1908 has only 328 pages, and is, in fact, the smallest of all pharmacopæias. One of

the chief innovations is the adoption of a new style of nomenclature for many of the official Latin titles for chemical compounds, approximating those in use in Great Britain. Thus, such designations as: Brometum ammonicum; chloretum chinicum; chloretum cocaicum; hydratocarbonas magnesicus; oxidum plumbicum; sulfas nydratocaroonas magnesicus; oxidum plumbicum; sulfas magnesicus, have been replaced by: Ammonii bromidum; chinini hydrochloridum; cocaini hydrochloridum; magnesii subcarbonas; plumbi oxidum; magnesii sulfas. With the exception of the official Latin titles, the Swedish language is used throughout. Chemical formulas and molecular weights are now given, and for essential oils the optical rotation and refractive index are included. No optical rotation and refractive index are included. No organotherapeutic products, serums or vaccins have been admitted; in the monograph on digitalis, a paragraph is included to the effect that "Digitalis leaf shall be submitted to such physiological tests and standardised as may be prescribed by the Medical Board. If the standardised drug is purchased, it must be supplied in a sealed container, with a label stating its activity, the name of the analyst and date of standardisation." Alteratives the state have been emitted and 160 added. Altogether 81 articles have been omitted, and 160 added; among the additions the following may be mentioned: among the additions the following may be mentioned: Acidum camphoricum; acidum phenylcinchonicum (atofan); amidopyrinum (pyramidon); argentum colloidale (kollargol); argentum gelatosatum (albargin); argentum proteinatum (protargol); barii sulfas purus (for X-ray examinations); bismuthi naphtholas; bromdiæthylacetylcarbamidum (adalin); bromvalerylcarbamidum (bromural); calcii bromidum; calcii glycerinophosphas; diæthylmalonylcarbamidum (veronalnatrium; medinal); diæthylmalonylcarbamidum (veronal); diallylmalonylcarbamidum = dial; kalii guajacolsulfonas (tiokol); manganosi hypophosphis; menthyli valerianas (validol); methylrosanilinum (blatt [blue] pyoktanin); natrii citras; natrii glycerinophosphas; neoarsaminolum (necsalvansan); natrii glycerinophosphas; neoarsaminolum (necsalvarsan); oleum chaulmoogræ; oleum sesami; oleum sojæ; papaverini hydrochloridum; pellidolum; phenylæthylmalonylcarbamidnatrium (luminalnatrium); phenylæthylmalonylcarbamicum (luminal); solutio adrenalini hydrochloridi; solutio Ringeri; terpineolum; unguentum argenti nitratis compositum; vanillinum; zinci peroxidum. The names given above in parentheses appear as synonyms under the corresponding official titles, and in each case attention is drawn, in a fcotnote, to the fact that this particular designation is a registered trade mark. While general rules for sterilisation are given in the introduction, specific directions for sterilising solutions of a number of substances appear in the appendix. We propose in a subsequent issue to deal more fully with this new pharmacopæia, the sixth to appear since the conclusion of the war.

July-September Drug Tariff

The following are the alterations for July-September in the Insurance Drug Tariff for England and Wales: in the Insurance Drug Tariff for England and Wales:—

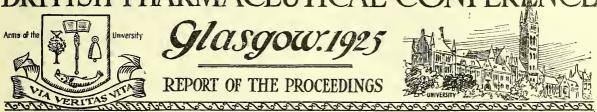
Lower.—Acid. citric. pulv., 2s. 3d. lb.; acid. tartaric. pulv., 1s. 7d. lb.; barbitonum, 1s. 9d. oz.; codeina, 5s. 6d. dr.; codein. phosph., 4s. 4d. dr.; dec. senegæ conc., 4s. 9d. lb.; ext. cannab. ind., 20s. oz.; cxt. ergotæ, 2s. 6d. oz.; cxt. crgot. liq., 6s. lb.; ext. seneg. liq. U.S.P. ix, 10s. 6d. lb.; ferri et ammon. cit., 3s. 2d. lb.; ferri et pot. tart., 5s. lb.; guaiacol carbonas. 1s. 2d. oz.; guaiacol liq., 1s. 2d. oz.; inf. senegæ conc., 3s. 8d. lb.; lin. methyl salicyl., 7s. 6d. lb.; lin. methyl sal. co., 8s. 9d. lb.; morph. acet., 5s. 9d. dr.; morph. hydrochl. 22s. oz.; pulv. sodæ tart. eff., 7.5d. doz.; sodii mitris. 2s. lb.; strych. hydrochlor., 3s. 6d. oz.; syr. scillæ, 11d. lb.; tr. crgotæ ammon., 6s. 3d. lb.; tr. guaiaci. ammon., 6s. 9d. lb.; tr. crgotæ ammon., 6s. 6d. lb.; ung. gallæ, 2s. 8d. lb.; ung. methyl salicyl. ft., 4s. lb.; zingiber jam. pulv., 2s. 10d. lb.

Higher.—Bism. carb., 16s. 6d. lb.; bism. oxid., 2s. oz.;

zingiber jam. pulv., 2s. 10d. 1b.

Higher.—Bism. carb, 16s. 6d. lb.; bism. oxid., 2s. oz.; bism. salicyl., 1s. 4d. oz.; bism. subnit., 14s. 3d. lb.; ext. bellad. vir., 10s. lb.; cxt. filic. liq., 1s. 1d. oz.; ext. hydrast. liq., 3s. 10d. oz.; ld., bism. et am. cit., 2s. lb.; ol. limonis, 6s. 6d. lb.; ol. menth. pip., 105s. lb.; ol. morrhuæ, 10s. 6d. gal.; tab. nasal alkaline, 1.6d. doz.; tab. quin. sulph. gr. i, 1.6d. doz.; tr. hydrastis, 10s. 6d. lb.; tr. valerian., 6s. 6d. lb.; tr. valerian., 6s. 6d. lb.; tr. valerian. ammon., 5s. 6d. lb.; ung. rusci co., 4s. lb. Bandages. india-rubber, 2½ in. x 1 yd., 19.5d., 2½ in. x 2½ yd., 28.5d. Ico bags: rubber, 113.5d., check, 23.5d. Gutta peroha tissue, 4.3d. per sq. ft.; jaconet, 3.6d. per sq. ft.;

BRITISH PHARMACEUTICAL CONFERENC



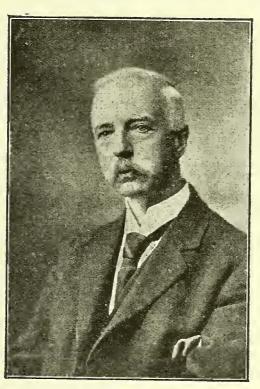
GLASGOW has twice previously been the home of the British Pharmaceutical Conference. The first occasion was the thirteenth meeting of the Conference on September 5 and 6, 1876. Professor Theophilus Redwood was President; the Vice-Presidents (other than past-Presidents) were Messrs. D. Frazer, T. H. Hills, R. Reynolds, and

E. C. C. Stanford; the treasurer was Mr. G. F. Schacht; the general secretaries were Professor John Attfield and Mr. F. Baden Benger; and the local secretary was Mr. A. Kimmimont. Professor Redwood's presidential address sought to indicate, among other things, the limits of medical advice safely to be given by pharmacists to their customers -a problem that the speaker admitted to be a difficult one. An unusual feature of the annual report was an intimation that the Executive Committee had rejected a proposal to "nominate a travelling professor of pharmacy, who should lecture in the provinces at dif-ferent centres," the Conference to contribute £150 per annum towards his remuneration. The funds at that time showed an excess of income over expenditure to the extent of £430. The authors of the scientific papers included (in order of occurrence) Mr. B. S. Proctor, Mr. W. W. Stoddart, Mr. D. B. Dott (still, happily, with us), Mr. David Brown, Mr. A. W. Gerrard (another Gerrard (another veteran of to-day), Dr. J. C. Thresh, Mr. C. T. Kingzett (author of a chemical diction-

(author of a chemical dictionary and other works), Dr. (now Sir) W. A. Tilden, Mr. W. L. Howie, Mr. Thomas Greenish, Mr. F. Baden Benger, and Mr. John Williams. Among others present were Mr. A. H. Allen, Mr. S. R. Atkins, Mr. H. B. Baildon, Mr. (afterwards Sir) Thomas Barclay, Mr. H. B. Brady, Mr. R. Chipperfield, Mr. J. Currie, Mr. H. Long, Mr. R. McAdam, Mr. J. Mackay, Mr. William Martindale, Mr. F. Passmore, Dr. B. H. Paul, Mr. F. M. Rimmington, Mr. (now Sir) R. A. Robinson, Mr. W. D. Savage, Mr. D. Storrar, Mr. Francis Sutton, and Mr. A. C. Wootton. Looking through The Chemist AND DRUGGIST report of the proceedings, it is evident that the occasion was distinguished by the abundant hospitality of the chemists of Glasgow and the district. hospitality of the chemists of Glasgow and the district. We read that "the hall in which the meetings were held was one in which pharmacy can but seldom hope to be indulged . . . and when the work was over they took us altogether out of our element, and in the most luxurious manner showed us all that panorama of splendid scenery which has made the Clyde so famous . . . Above all, they greeted us one and all as if they heartly enjoyed our visit. . . ." The excursion to the Kyles of Bute on the day following the Conference started before 7 a.m.; more than two hundred chemists and "a

fair sprinkling of ladies" assembled, "all trying to look as if this was their customary hour for turning out. A cryptic sentence later in the same portion of the narraafterwards related the pathetic story which his nurse once told him." We infer that it was amusing.

With the second visit of the



THE RT. HON. THE LORD PROVOST OF GLASGOW (MR. M. W. MONTGOMERY)

Conference to Glasgow, August 10 and 11, 1897, we reach modern times, alike in the type of programme presented and in the list of members present. It is difficult, perhaps, to realise that this meeting took place so long ago as the year of Queen Victoria's diamond jubi-lee, except for the lines of verse evoked by the occasion (and printed in the C. d D.). tand printed in the C. & D.). We do not, perhaps, pay the same kind of acknowledgment to poetry now; but "Qualified in Pharmacee," a parody on a well-known song in "H.M.S. Pinafore" by Mr. James Bain (Glasgow Apothecaries' Co.), is quite as good as most things served up for the delectation of modern Conference audiences. Professor Remington, Philadelphia, and Mr. Champion, Natal, were distinguished visitors from overseas, and re-ceived an official welcome. The following is the list of officers: - President, Dr. Charles Symes; Vice-Presidents (in addition to past-Presidents), Mr. Walter Hills, Dr. J. L. Ewing, Mr. R. McAdam, and Mr. W. F. Wells: treasurer, Mr. John Moss; general secretaries, Mr. W. A. H. Naylor and Mr. F. Ransom; and local secretary, Mr. J. A. Russell. The presidential address embodied statistics on the growth

of the Conference membership and hinted at two important changes in pharmacy that have since been effected the Conference membership and innted at two important changes in pharmacy that have since been effected—the division of the Qualifying examination and the revival of the "known, admitted, and approved" remedies exemption. Among readers of papers were Dr. John Attfield, Messrs. E. H. Farr and R. Wright, Dr. J. C. McWalter, Mr. J. C. Umney, Professor C. G. Henderson, Mr. F. C. J. Bird, Dr. G. Claridge Druce, and Dr. S. Rideal. The C. & D. "Who were there" list included the names of Mr. F. Bascombe, Mr. F. E. Bilson, Mr. Peter Boa, Mr. D. Brown. Mr. G. Coull, Mr. C. Cummings, Mr. W. L. Currie, Mr. H. Gadd, Mr. J. Rutherford Hill, Mr. Samuel Hogg, Mr. E. M. Holmes, Mr. J. H. Hoseason, Mr. T. H. W. Idris, Mr. James Jack, Mr. C. A. Johnstone, Mr. G. S. Kitchin, Mr. G. Lunan, Mr. Peter MacEwan, Mr. N. H. Martin, Mr. James Mackenzie, Dr. B. H. Paul, Mr. A. J. Pidd, Mr. (now Sir) R. A. Robinson, Mr. D. Storrar, Dr. J. F. Tocher, Mr Thomas Tyrer, Mr. A. C. Vallance, and Mr. G. Ward. The President's reception on the eve of the Conference was attended by "at least 350 people," and the Kyles of Bute was again chosen for the excursion. the Kyles of Bute was again chosen for the excursion.

Opening Session Tuesday Morning, July 28

Glasgow was looking its best when the Conference assembled, on Tuesday morning, in the ornate hall of the Grosvenor Restaurant; the legend that it always rains in the city was effectively silenced by as perfect a morning as the most fervent Glaswegian could have desired. The procession, which made its way to the platform amid cordial applause, consisted of the President of the Pharmaceutical Society (Mr. Philip F. Rowsell), ex-Bailie William B. Smith, O.B.E. (chairman of Health Committee, Glasgow Corporation), Mr. Edmund White (chairman of the British Pharmaceutical Conference), Mr. William Kirkby and Mr. E. Saville Peck (past-Presidents of the Conference), Sir William Glyn-Jones (secretary of the Pharmaceutical Society), Mr. D. Lloyd Howard (treasurer of the Conference), and the general secretaries (Mr. C. H. Hampshire and Mr. F. W. Crossley Holland). The address of welcome, delivered (in the unavoidable absence of the Lord Provost) by ex-Bailie Smith, clearcut and concise in phrasing, made an excellent effect, and his view that pharmacists do not always get from the public the credit to which they are entitled was heartily approved. After brief replies from the President and chairman, the latter, after apologies for absence had been read, followed with his address. A full report appears on another page of this issue, and it is only necessary here to indicate that the most significant part of its subject-matter was the aspiration towards an Imperial Pharmaceutical Conference—to be merged, possibly, in a Conference of the English-speaking world. The customary vote of thanks was moved by Mr. E. Saville Peck, and Mr. Kirkby seconded it with characteristic lucidity and crispness. The chairman, in replying, made some humorous reflections on the Scottish people, after which ex-Bailie Smith left for another engagement, the audience The secretary's and treasurer's reports came next, those members who favoured the ladies' excursion filing out while these were being read. The remainder of the morning was occupied by the reading of science papers, a report of which appears in its usual place. The author of the first paper had the advantage of having his work and results summarised by Mr. James Grier.

THE CIVIC WELCOME

The CHAIRMAN: Ladies and gentlemen, I will first of all call upon ex-Bailie Smith to address you. He has come here to offer us welcome from the Corporation and

the city of Glasgow.
Ex-Baille W. B. Smith said: Mr. Chairman, President, ladies and gentlemen, members of the British Pharmaceutical Society meeting here in conference, I regret the absence of the Lord Provost, but you can quite understand that the Lord Provost of a large city has many duties, and they sometimes overlap. But I am sent here as chairman of the Health Committee to welcome you to our city, and to hope that while you are here you will find yourselves amid congenial surroundare here you win find yourserves amid congenial surroundings. We hope that your discussions, your deliberations, and the conclusions that you come to will be helpful to you in the exercise of your profession. Your profession, like everything connected with public health, is one of constant progress, constant improvement, and therefore of constant change. On that account it is necessary that you meet together at regular intervals to discuss the problems that arise through this change and discuss the problems that arise through this change and progress. We of the Health Committee specially recognise the great part that you fulfil in the organisation or many organisations connected with improving the health and even increasing the span of life of our citizens. We admire the extreme care, skill and accuracy with which your work has always been conducted. I am afraid that you do not always get the amount of credit from the public that you ought to do for the wonder

of this work. (Hear, hear.) Some time ago a little girl in a small Scottish town took seriously ill. A doctor was called in and prescribed a small quantity of a very potent drug. An old lady next door, a neighbour, was sent to the chemist to get it dispensed. The chemist, like you all, was extremely accurate, and as he was measuring out the grain or two of this very powerful. was measuring out the grain or two of this very powerful medicine with great care the old woman got rather impatient and exclaimed: "Dinna be sae scrimp wi' it. It's for a puir faitherless bairn." (Laughter.) We of the Health Committee realise the importance of the accuracy on which so much depends. We marvel as year after year passes at the absence of any error or mistake or any fau't whatever. We never hear of such mistake or any fau't whatever. We never hear of such in the course of our deliberations, therefore we appreciate your work. We wish you great success in your meetings here, in what you learn, in what you decide, and how you apply it when you go back to your respective centres. On behalf of the Corporation and of the citizens of Glasgow, I offer you very hearty welcome, and trust that you will find everything to your liking while you are with us. (Applause.)

The Charrann: I will ask the President of the Society to acknowledge the kind recention which as Railie Smith.

to acknowledge the kind reception which ex-Bailie Smith

has given us this morning.

The President: Mr. Chairman, I desire on behalf of the members of the Pharmaceutical Society to thank you, Mr. Ex-Bailie, for your very delightful welcome to this Conference to-day. I am quite sure, keeping in mind Conference to-day. I am quite sure, keeping in mind the exceptional welcome which we received last night at the hands of the Lord Provost, and also emphasised the hands of the Lord Provost, and also emphasised this morning in so marked a degree by the chairman of the Health Committee of this great city, which has so many problems concerning the housing of the people and the health of the people generally, we do indeed appreciate the warmth of the welcome, and I am convinced that here in Glasgow we shall have perhaps one of the prost greaters are the most greaters of the prost greaters are the most greaters of the prost greaters. of the most successful—perhaps the most successful— Conferences which this Society has ever held. (Applause.) I was told before I came to Glasgow that it was always raining in the city. (Laughter.) Well, all I can say is that ever since I have been in the city of Glasgow there has been no rain, and we do sincerely hope that this may prevail right through to the end of the week. Our Conferences have been very successful, as I have said, but I look back in memory to the time of the first Conference in this city in 1876, which was presided nest Conference in this city in 1876, which was presided over by one of the great men of pharmacy, Professor Redwood; and then again I think of 1897, when a man beloved, greatly beloved of his brethren, Dr. Symes, of Liverpool, presided over our deliberations at that Conference. And I am convinced, Mr. Chairman, that under your presidency during this week the Conference of 1995 will always stand out in the history of pharmacy. of 1925 will always stand out in the history of pharmacy of 1925 will always stand out in the history of pharmacy as a memorable one, seeing that it has been presided over by one so respected and esteemed and beloved as our present chairman, Mr. Edmund White. (Applause.) If I were to talk for ten minutes on the warmth of our reception, upon the kindly actions we have already received at the hands of the citizens, I could say no more in these ten minutes than I can sum up in just a word or two: that we do very heartily and sincerely appreciate the most generous welcome which has been appreciate the most generous welcome which has been given us to-day. And, in conclusion, may I say, in the words of your poet Burns, beloved of Scotsmen:—

Oh Scotia, my dear, my native soil.

For whom my warmest wish to Heaven is sent;

Long may thy hardy sons of rustic toil

Be blessed with health, and peace, and sweet content.

Sir, I thank you for your welcome, and I trust that the sentiments of Burns may be long not only the wish but the climax of your great country. (Applause.)

The CHAIRMAN said he would like to add, as chairman

of the Conference, a few words to what the President had said in reference to ex-Bailie Smith's very kind welcome. They would have noticed that although ex-Bailie Smith did not belong to their profession, he touched upon two words which were a keynote of these gatherings. He spoke of accuracy and change. The changes they could not help. They came about by natural evolution and by the nature of the world in which we lived; but if a body could not meet changes by adapting itself it became stagnant and died. That

was not going to happen to that Conference. (Applause.) They were particularly careful to see that what the Conference did stand for was progress, and accuracy should be, and, he believed, so far as the Society and the Conference could make it, was the end and all of the operations carried out by the members of their profession. In conclusion, Mr. White again expressed appreciation of the reception accorded the members of the Conference in Glasgow. the Conference in Glasgow.

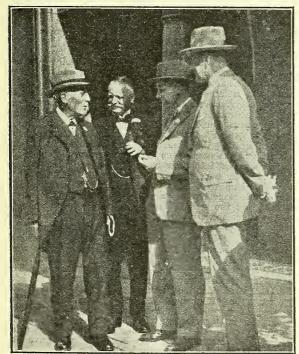
APOLOGIES FOR ABSENCE

It was intimated that apologies for absence had been received from Mr. Robert Wright, Mr. W. A. H. Naylor, Mr. F. Ransom, Dr. J. F. Tocher, and Mr. E. M. Holmes, all of whom are past-Presidents of the Conference.

The CHAIRMAN then delivered his address, which is printed in full on pp. 159-161.

VOTE OF THANKS

Mr. E. SAVILLE PECK said he thought they would all agree that they had listened to a very exhaustive and illuminating address, and one such as they expected from such a chairman as Mr. Edmund White. They had listened with great interest to his sentences on the institution by the Pharmaceutical Society of a biological laboratory for the standardisation of therapeutic substances, especially those of animal origin, and he thought they would entirely agree that the institution of such a laboratory by the Society would considerably increase the prestige and enhance the reputation of the Society and also of each individual member—and they needed that very seriously at the present time. They believed now that they had the ear of the Government departments in a measure they had never attained to before. They had heard from ex-Bailie Smith that they had the kindly appreciation of municipal authorities. They also believed that in a certain degree—although he was not one to attach too much importance to it—they had the goodwill of the medical profession. (Laughter.) They needed all that to educate these people up to the idea that pharmacy had really definite and individual special functions to perform and a particular niche in the social system. This, as they knew from



Photo]

[Cleworth

ARRIVING AT THE CONFERENCE

Left to right: Mr. R. Feaver Clarke, Mr. J. H. Franklin (Manchester), Mr. F. Naylor (Southport), Mr. Ashworth

the chairman, was fully realised abroad. They had there, of course, a division of prescribing and dispensing. He was not quite sure that they were entirely ready for that here, but at any rate they were advancing in that direction. The University degree given by London was a step in the right direction, but they must not forget that for many years the universities of Glasgow and Manchester had recognised that pharof Glasgow and Manchester had recognised that pharmacy was a subject worthy of recognition for a degree. (Hear, hear.) With regard to the unification of pharmacy in the English-speaking communities, the chairman had mentioned that the B.P. Codex and the U.S. Pharmacopæia were very good publications. But they must not forget that the B.P. Codex was unofficial, while the U.S. Pharmacopæia was official. He hoped there might be a rapprochement of the Medical Council, so that they might invite pharmacists to enter more closely into their deliberations. their deliberations

Mr. William Kirkby, in seconding, said it was just the sort of address they should expect from Mr. White, an address looking forward, and not looking backward. They were greatly indebted to Mr. White for his many services in the past. He was still a juvenile, although his hair was powdered. Their thanks came from the bottom of their hearts. They had followed Mr. White's career now for many years, more years than his face would acknowledge, but, notwithstanding, they looked for many more years of service for him. (Applause) He would guide them, he was quite sure, in the right way. He always managed to bring to every matter, to every subject he had under consideration, a common-sense which they would forgive him if he said was something more than British common-sense. It struck him as being an Englishman's common-sense, because it was tinged with a cynicism which was altogether lacking in the Scottish character. (Laughter.)

The vote of thanks was put to the Conference by the President and accorded with acclamation.

The CHAIRMAN briefly acknowledged the vote of thanks.

ANNUAL REPORT.

The annual report, read by Mr. C. H. Hampshire, is summarised as follows :-

The membership of the Conference now consists of:—Honorary members of the Pharmaceutical Society (20); members of the Pharmaceutical Society; corresponding members, foreign and colonial (23), home (117). Since the last annual meeting 94 members have retired under Rule 7, by which the names of persons whose subscriptions are not paid by June are deleted. The Executive have been represented upon the Joint Subcommittee appointed to make the award of the Harrison Memorial Medal. This Subcommittee awarded the medal and a prize of books to Mr. F. W. Adams for his studies on bismuth compounds. The "Year Book of Pharmacy" was issued early in the year and was made to cover the same ground as the previous volume. Was made to cover the same ground as the previous volume. The best thanks of the Executive are again due to Mr. J. O. Braithwaite, editor of the Abstracts. The Committee regret to record the death of Professor H. Kraemer, who was for some years an honorary member of the Conference, and of the following members and corresponding members: C. Symes, T. H. W. Idris, F. Boehm, J. W. Cooper, W. Kerse, H. G. Smith, J. Walker, A. E. Tanner and E. Nuthall. Dr. C. Symes was for many years a staunch supporter of the Conference, and occupied the presidential chair at the Glasgow meeting in 1897 and at the Belfast meeting in 1898. Of his many interests in life it may be said truly that the welfare of pharmacy was chief, and his wide knowledge and kindly advice were ever at the disposal of his pharmaceutical confrieres. Mr. T. H. W. Idris was President at the Bristol meeting in 1903 and the Sheffield meeting in 1904. During his activities, both inside and outside of the House of Commons, of which he was a sometime member, Mr. Idris made pharmaceutical interests peculiarly his own. In the death of these two ex-Presidents, who were among those who most regularly attended, the Conference has sustained great loss, and the Executive records with sorrow their passing. records with sorrow their passing.

Mr. J. P. ELLERINGTON moved the adoption of the report. He remarked that he knew how diffident Scotsmen were—(laughter); but the hospitality of Glasgow was lavish and wiped out any "skimpiness" in weighing calomel. (Laughter.)

Mr. J. GRIER briefly seconded, and the report was adopted.

TREASURER'S REPORT

Mr. D. LLOYD HOWARD (treasurer) presented his report, of which the following is a summary:—

Income: Balance in hand, £167 11s. 7d.; subscriptions (to bankers), 4s. 6d.; dividend on consols, £31 4s.; sale of "Year-Book," £28 13s. 6d. Expenditure: Dulau & Co., 6s.; H. K. Lewis (B. and H. Fund), £10 10s.; advertising, £2 2s.; balance in hand, £218 11s. 7d.

The financial statements of the Bell and Hills Fund and of the Conference Research Fund are also included in the report.

Mr. Howard, in presenting the report, pointed out that the "receipts and payments" line showed what had passed through the banking account of the Conference. The Conference research fund would make its

final appearance in the rext Conference report,
Mr. Franklin moved the adoption of the report,
remarking that Mr. Howard's reports were always com-

plete in themselves.

Mr. SMALLEY seconded with an acknowledgment of the treasurer's "admirable stewardship," and the report was adopted.



Photo? Left to right: Mr. F. E. Bilson, Mr. Philip F. Rowsell (President of the Conference)

The Conference then proceeded to the work of the Science Section.

Science Section—Tuesday Morning

The first paper, read by Mr. James Grier, M.Sc. (Manchester University), was:—

A Chemical Examination of the Oleo-Resin of Indian Valerian Root

By K. Bullock, M.Sc., A.I.C. [Aestract.]

After referring to a previous communication on the assay of valerian root the author stated that the absence of any reference in the literature led him to undertake the extraction of 33 cwt. of Indian valerian with low-boiling petroleum spirit, the root having been previously powdered and moistened with water. The solvent was removed from the extract under reduced pressure, and in this way 6lb. 1420z. of extract, corresponding to a yield of 1.64 per cent., was obtained. By the assay process it was found that the marc still contained 0.7 per cent. of material soluble in petroleum, which had apparently escaped extraction. A sample of the extract was found to contain 47.4 per cent. of oleo-resin (i.e., material soluble) in 70 per cent. alcohol), corresponding to 0.77 per cent. in the root used. It should be noted that this is a very low percentage; samples of genuine Indian valerian previously examined in the laboratory containing generally between 2 and 3 per cent. of oleo-resin.

Test for an Alkaloid .- A sample of the etheric solution of the oleo-resin was shaken out with 5 per cent. aqueous HCl. The latter, after repeated extraction with ether to remove traces of oil, gave not the slightest reaction with phosphotungstic acid, or the reagents of Meyer, Thresh, and Denigés. The HCl extract was then made alkaline with NaOH, and shaken out with ether. The ether layer, after separation and drying, yielded no residue on evaporation. It was, therefore, concluded that no alkaloidal material is present in the oleo-resin.

Ammonium Carbonate Extract.—The etheric solution of the oleo-resin was shaken three times with an equal volume of 5 per cent. ammonium carbonate solution, prepared by dissolving commercial ammonium carbonate in water and bubbling in CO2 to saturation. ammonium carbonate extracts were united, acidified with sulphuric acid, and extracted with ether. Traces of oil in this solution were removed by evaporating off the ether, adding water, neutralising with solid ammonium carbonate, and washing with ether; the purified acids being recovered by acidification, and extraction with ether. In this way 205.7 grams of material soluble in ammonium carbonate solution were obtained. Ninety grams of the acids obtained by removing the solvent from this extract were distilled, when three fractions were collected. An examination of these fractions would seem to indicate that the whole of the volatile acids consist of valerianic restrictions are restricted to the control of the c

acid, excepting possibly a very light trace of a higher homologue.

Sodium Carbonate Extract.—The residual etheric solution of the oleo-resin was next extracted with 5 per cent. sodium carbonate solution in exactly the same manner as previously with ammonium carbonate. It may be mentioned that a very stable emulsion which formed during the extraction was rapidly broken up by addition of a few c.c. of an aqueous solution of potash alum; 96.37 grams of material soluble in the sodium carbonate solution were obtained. Preliminary work having shown that the extract consisted of a mixture of approximately the extract consisted of a mixture of approximately a saturated and \(\frac{3}{4}\) unsaturated fatty acids, these were separated by means of the differing solubility of their respective Pb salts in dry ether. A solid volatile acid was obtained, which was found to have a melting point of 23.5° C. The non-volatile acids were also isolated and recrystallised from dilute alcohol. Subsequent fractions all melted about room temperature. The unsaturated acids, which were of a light yellow colour, were found to be entirely soluble in dilute aqueous ammonia, yielding a light pink-coloured solution, indicating the absence of any considerable amount of resin in the ammonium carbonate extract. The acids were converted into their barium salts, and these recryswere converted into their battain saits, and after text's tallised from a mixture of benzene and alcohol, when two fractions were obtained having iodine values 133.9 and 133.4, respectively. From the various tests it would appear that the sodium carbonate extract consisted of a somewhat complex mixture of saturated and unsaturated fatty acids.

Sulphuric Acid Hydrolysis.- Eleven grams of residual oleo-resin from which the ether had been removed were hydrolysed by heating on the water bath for four hours with normal sulphuric acid with frequent shaking. The with normal sulphuric acid with frequent shaking. The colour darkened as soon as the heating commenced, considerable resinification occurring. Further treatment yielded the following results:—Non-volatile matter soluble in petroleum spirit = 5.704 grams; black carbonaceous matter filtered off=0.45 gram; volatile acids soluble in ether = 1.163 grams=7.317. The volatile acids had a very strong smell of acetic acid and gave the characteristic red colour with ferric chloride.

Potash Hudrolusis—5.55 grams residual also resist work

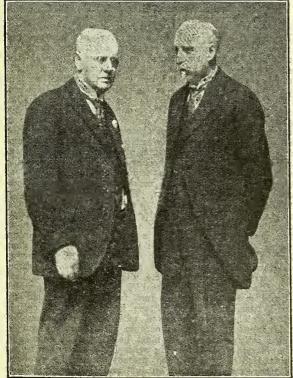
Potash Hydrolysis.—5.55 grams residual oleo-resin were hydrolysed with 75 c.c. N-alcoholic potash solution. The product was steam-distilled, when 2.505 grams of a colour-less oil heavier than water passed over. The non-volatile residue was acidified and again steam-distilled when 0.695 gram of volatile acids passed over These were light green in colour, pungent, and smelling of acetic acid, which they no doubt contained to some extent. Two grams of non-volatile resin were recovered from the distillation flask. Thus, in all 5.195 grams were recovered.

Steam Distillation.—11 grams of residual oleo-resin were steam-distilled. The oil came over quite fast at first, and then suddenly slackened. Soon after this the distillation was stopped. Resinification occurred slowly, but apparently to only a slight extent, since most of the residue left in the flask was soluble in low boiling petro-leum spirit. Weight of volatile oil = 1.576 grams; weight of residue soluble in petrol = 7.45 grams = 9.026. The residue is soluble in 70 per cent. alcohol, darkens at once with KOH, and resinifies with HCl, even in the presence of zinc. It gives a green colour with bromine. Tests indicated the presence of 8.8 per cent. esters, calculated as bornyl valerianate in this steam-distilled

Vacuum Distillation .- 154 grams of the residual oleoresin were distilled under approximately 2 mm. pressure, a fractionating column having pear-shaped bulbs being employed. The two fractions which were collected were light yellow in colour and pungent-smelling; both had a

strongly acid reaction to litmus.

Finally, 200 c.e. of the fatty material insoluble in 70 per cent. alcohol were hydrolysed by boiling under a reflux for three hours with excess of 16 per cent. alcoholic KOH. The unsaponified matter consisted of an orange-coloured semi-solid mass. The aqueous solution from which the unsaponified matter had been extracted was acidified with sulphuric acid, and the liberated acids taken up with ether. The aqueous solution from which the unsaponified matter and fatty acids had been removed was carefully tested for glycerin, with negative results. A small quantity of the unsaponifiable matter was distilled in vacuo, three fractions being collected. The first fraction was found to have a negligible acetyl value, and consisted apparently of hydrocarbons or similar inactive substances.



Clearorth LEAVING THE CONFERENCE Left to right: Mr. A. McMillan, ex-Bailie W. B. Smith

The sample of Indian valerian examined was found to contain a relatively large proportion of free acids, of which valerianic acid formed the greater part. The other acids present were found to be a somewhat complex mixture of saturated and unsaturated fatty acids. Resinification is easily brought about by the action of acids, alkalies, and heat, it is partially due to oxidation of the unsaturated fatty acids. The fatty matter does not appear to be of the nature of a glycerin. The unsaponified matter seems to contain a liquid hydrocarbon and a semisolid high boiling alcohol.

The above research is being carried out in the pharmacy department of Manchester University under the direction of Professor R. B. Wild, M.D., M.Sc., F.R.C.P., and Mr. J. Grier, M.Sc., Ph.C.

Discussion

Mr. Franklin (Manchester) called attention to the differences between the oleo-resins from English and Belgian roots, differences of great importance topractising pharmacists.

Mr. R. R. Bennett (London) said he had been intrigued by the first paragraph or two of the paper. He suggested that the small yield of oil indicated, apart from old root, that the volatile constituents resinify when kept. The oil also suffered hydrolysis when steam distilled under ordinary conditions. ordinary conditions. He questioned whether Indian root was of much value commercially. There were certain supplies during the war, but it is a poor substitute for the official root.

Mr. T. EDWARD LESCHER (London) emphasised the marked differences between English, Belgian and Indian roots, and the supremacy of the first-named. Unfortunately, the English cannot be obtained or the supply is limited. The tincture from English root is often criticised as being too dark, but English root, for pharmaceutical purposes, stands head and shoulders over others, and must give better results in use. There is no official guidance laid down as regards English root. Samples of Scottish root have, if anything, proved rather better than English.

Mr. FINNEMORE (London) praised the author for the paper. He recalled an experience when testing a sample of tincture from Indian root which gave rise to alarming action on the throat, resembling that of aconite. The author's sample appeared not to have contained acetate, and no attempt was apparently made to investigate if aeetic and formic acids were present.

Mr. Bryant (Aberdeen) inquired if Indian valerian is a substitute for English or Belgian root. There is and can be large quantities of high quality valerian root grown in Aberdeenshire, the difficulty is the question of labour for collection. The Scottish valerian is in fine condition this year, and may be in quantities of commercial to the second s cial value. The contradictory results obtained with infusion of valerian may be due to the preparation from different roots.

Mr. GERRARD (Birmingham) eulogised the work of the author. The best preparations are wanted, and it is only by such work that they can be obtained. He inquired at what period of its growth valerian should be collected, and pointed out that there should be no difficulty in cultivation in this country.

Mr. Evers (London) asked if the authors had done any further research on the acid, and queried the proportion

of methyl-ethyl-acetic acid.

Mr. GRIER, in his reply, said a fresh sample of Indian Mr. Grier, in his reply, said a fresh sample of Indian valerian yielded 2 to 3 per cent. of oleo-resin. The Indian valerian was the dwarf variety from the North-West Himylayas. Losses are due to the time which elapses between collection and receipt. English valerian is of quite good, and Scottish of excellent flavour. Valerian appears to have originated on dry soil. The Derbyshire industry seems to have died out. The yield of oleo-resin varies with the method of extraction. There is resin varies with the method of extraction. There is a constituent which has a peculiar effect on the bronchial tubes. The Italian Pharmacopæia says that valerian should be collected in the spring before flowering. Hill distinguishes between two varieties—the one which is more aromatic and should be used, and that which is grown in marshy places and should not be employed.

The next paper was :-

Notes on the Quinine Sulphate Monograph of the B.P. Codex, 1923

By Bernard F. Howard, F.I.C., and Oliver Chick, $A.\mathrm{I.C.}$

[ABSTRACT]

THE authors wish to draw attention to what seems at first sight to be a ridiculously small variation in the wording of the description of the test for cinchonidine and other alkaloids, between the B.P. Codex, 1923, and the B.P., 1914. It would appear that the intention of the Codex authorities in framing the monograph was to amplify the B.P. description and render it easier was to amplify the B.P. description and render it easier to carry out, and there is no evidence suggesting any intention of the author of the monograph to render the test any more stringent or in any way to alter the standard of the B.P. The unfortunate wording, however, of one sentence has, in the authors' opinion, quite unintentionally changed the whole character of the test, and raised the standard as regards the presence of other alkaloids to a point very near chemical purity. To point out exactly what this variation is, it is only necessary to put the two paragraphs side by side:—

"When 2 grammes weighed after drying at 50° C. are digested at 60° to 65° in a stoppered test tube with 20 millilitres of water for half an hour. . . ." "When

B.P.C. 1923
"Dry 2 grammes of the salt at 50° C. for two hours in a porcelain dish on a water-bath. The residue, which must be perfectly neutral, is transferred to a stoppered test-tube, and 20 mils of water added. It is then heated on a water-bath for half an hour at 60° to 65° C."

It will be noticed that the point of difference is the temperature of the 20 c.c. of water that are added. The B.P. 1914 undoubtedly implies that this water may be added at the prescribed temperature, viz., 60°-65° C., whereas the B.P. Codex can be read to imply that the addition of water is carried out at normal temperature, say 15° C., and that subsequently the heating of the mixture to 60°-65° takes place. As the B.P. 1914 was the first edition to adopt Kerner's test for other alkaloids, the authors quote its interpretations in the French, United States and German pharmacopæias, and point out that there are two ways in which the severity of the test can be varied and the resulting standard raised or lowered: (1) By adding the water required for digestion, hot or cold. (2) A variation in the number of c.c. of ammonia allowed to produce a clear solution. This is a purely arbitrary amount laid down by different authorities according to the standard they require. Therefore, the authors deal only with point (1), but they point out that quinine of the German pharmacopeia standard is classified among a group of foreign pharmacopeias which approach very closely to chemical purity, necessitating a considerable increase in the cost of manufacture and without exception demanding a considerably higher price than the American or British standards, all of which are amply pure enough for any ordinary pharmaceutical requirements whatsoever, with the possible exception of special clinical research on the exact therapeutic effect of the salts of the chemically pure alkaloids. The fact that certain foreign friends were actually of opinion that the B.P. Codex interpretation, as they read it, had in effect changed the B.P. standard and imposed a new legal standard of higher quality upon quinine sulphate sold on the English market renders it an extremely important matter that no variation of B.P. tests should be allowed to Engish market renders it an extremely important matter that no variation of B.P. tests should be allowed to appear in the B.P. Codex without comment, and thus be liable to be incorporated in the new legal standard of any forthcoming edition of the British Pharmacopæia. In order to illustrate the chemical difference incurred by the two interpretations, the authors give in tabular form a series of experiments with quinine containing different proportions of the two other alkaloidal salts normally present in quinine sulphate, viz., cinchonidine sulphate and hydroquinine sulphate. The difference of about 0.5 c.c. obtained in two series of tests may be

explained by considering what really takes place on adding the water in each case. When water at 65 C is added and the digestion continued at that temperature as attended and the digestion continued at that temperature as antimated solution is rapidly obtained, and the quinine sulphate particles must be dissolved fairly evenly. In the other case, in which the water is gradually heated up from 15° C. to 65° C., very slow saturation takes place, probably accompanied by selective solution of the more soluble cinchonidine and hydroquinine sulphates, and consequently a higher test will be obtained. It was found that arise relative probably accompanied to the control of th found that quinine sulphate containing only 1.6 per cent. of cinchonidine sulphate and 2.6 per cent. of hydroquinine sulphate comes within the 6 c.c. limit of the test if hot water is added, but will not pass the standard if cold water is added in making the solution for digestion. In other words, if the B.P. Codex 1923 interpretation of the test were allowed to stand and the clause were adopted verbatim in the next edition of the British Pharma-copæia, it would be possible for au analyst to reject quinine sulphate of the above-mentioned high degree of purity as failing to satisfy the standard established under the Food and Drugs Acts.

[Another paper on quinine sulphate by the same authors

appears on p. 191.]

Discussion

Mr. Hampshire suggested that one point in the authors' paper seemed to be based on a misapprehension. The "Action and Uses" section in the British Pharmaceutical Codex was not given with the idea of laying

down a test, but as dispensing information. It was very useful to have the solubility in various dilute acids.

Mr. Finnemore confirmed Mr. Hampshire's remark as to the object of the Codex statement. It showed how careful writers of Codexes ought to be. The Codex Com-

The Charman, speaking as chairman of the Codex Committee, welcomed criticisms of this kind. There were thousands of small points which it was difficult to get correct.

The next paper was :-

The Estimation of Small Amounts of Reducing Sugars in Urine

BY FRANK WOKES, B.Sc., A.I.C., PH.C.

[ABSTRACT]

RECENT research work by a number of leading biochemists has shown that reducing substances, including reducing sugars, are present in all human urines, even of perfectly healthy and normal persons, in amounts ranging from 0.04 to 0.3 per cent, the actual amount depending on diet, time of collection, and other factors. Whether these are detected by the usual routine qualitative tests, such as Fehling's, depends not only on the actual conditions and the reserved in the condition of the conditions of the co above-mentioned conditions under which the sample is taken, but also on the percentage present in the urine of various interfering substances such as creatinine and other nitrogenous constituents, glycuronic acid and glycuronates, and certain polyphenols. These interfering substances are present in widely varying amounts, so that it is not possible to make any satisfactory allowance or correction for them. The author then proceeded to describe various tests which have been introduced to overcome these disadvantages, whereupon he outlined to overcome these disadvantages, whereupon he outlined a suitable method of testing a patient's urine for reducing sugar. The first step is the removal of the interfering substances. This can be mest satisfactorily done by the method of Patein & Dufau, using the following solution: HNO, conc. 160 c.c., red HgO 220 grams. Stir well, then add 160 c.c. distilled water, and heat till dissolved. Cool, and add 75 c.c. N/1 NaOH, which should make the solution just faintly acid. Make up to 1 litre, and filter. Store in a bottle of actinic glass. The urine is mixed with an equal volume of this solution, and solid sodium bicarbonate stirred in this solution, and solid sodium bicarbonate stirred in till faintly alkaline. It must be filtered at once and the filtrate tested for Hg with Na₂S after acidifying with H₂SO₄. If Hg be present it can be removed either by reduction with Zn dust and HCl, or by adding Na₂S solution (free from sulphite and this sulphate). Na.S solution (free from sulphite and thiosulphate) in slight excess, and filtering. The method used depends on the method of estimating the reducing sugar which

is to be adopted afterwards. In either case allowance must be made for the dilution produced when adding the HCl or Na₂S solution. This treatment removes almost all interfering substances, and does not precipitate, adsorb, or destroy glucose. The next step is the method for estimating the reducing sugar. After giving an exhaustive comparative survey of the standard and also of the newer methods of estimating small amounts of reducing sugar, and criticising their applicability, the author stated that the concentration of glucose in normal human blood (i.e., about 0.08 to 0.12 per cent.) being very similar to the concentration of reducing sugar in normal urine (i.e., about 0.04 to 0.15 per cent.), it occurred to him that it should be possible to devise a method for estimating reducing sugar in normal urine which would make use of the reagents and apparatus required for the estimation of "blood sugar," and thus enable those pharmacist-analysts who are already carrying out these "blood sugar" estimations to undertake readily, after a little practice, estimations of physiological amounts of reducing sugar in urine. As a result of his investigations, he has elaborated the following adaptation to urines of S. W. Cole's micro-method of estimating reducing sugar in blood.

1. Removal of Interfering Substances.—In a large beaker (250 or 300 c.c.) put 20 c.c. urine, with 20 c.c. of Patein & Dufau's reagent and mix with a glass rod. Add solid NaHCO₃ gradually, stirring well and allowing time for effervescence, until the fluid is faintly alkaline. Filter into a dry beaker. Take 10 c.c. of this first filtrate in a 100 c.c. graduated flask and add a slight excess of Na₂S solution. Make up to 100 c.c. and filter. Each c.c. of this second filtrate will be equivalent to 0.05 c.c. of original urine.

2. Standard Heating Apparatus.—Two or three "resistance" flasks of 100 or 120 c.c. capacity, costing about 1s, each, will be required. They must be all approximately the same weight. Using a tripod and asbestos gauze, arrange a lighted Bunsen underneath in such a way that 23 c.c. of cold water, in one of the flasks, when placed on the centre of the hot gauze, will take from 110 to 130 seconds to come to the boiling point. The easiest way of doing this is to turn the gas full on, and then throttle it down by means of a screw clip on the rubber tube between gas tap and Bunsen.

3. Dilution of Urine .- Cole's micro-method gives the best results when the concentration of reducing sugar in the reaction mixture lies between 0.0002 and 0.0015 per cent. Since the range of concentration of reducing sugar in normal urine extends between 0.04 and 0.3 per sugar in normal vrine extends between 0.04 and 0.3 per cent., it is necessary to arrange for the urine in the reaction mixture to be diluted about 40 to 200 times. To find exact dilution desired, carry out qualitative tests on the original urine, using first either Benedict's or Nylander's reagents. If there is the slightest sign of reduction try Fehling's qualitative test. If this also is reduced, however slightly, try Crismer's safranine solution. The author gave a table for ascertaining approximately the necessary dilution.

4. Estimation of Reducing Sugar.—In one of the resistance flasks put the amount of second filtrate thus ascertained, add 3 c.c. of Cole's alkaline copper iodate mixture and distilled water to make total volume 25 c.c. Mix well, and put on hot gauze, noting exact time to within five seconds. At end of two minutes the mixture should be just beginning to boil. When it has been boiling for exactly eight

to boil. When it has been boiling for exactly eight minutes run in 5 c.c. acid. sulph. dil. B.P. from a pipette held in one hand, while removing the flask from the flame with the other hand. Allow to cool two or three minutes, and proceed as described above. If too much urine has been taken no yellow colour of free iodine will be seen on adding the KI solution, and a smaller quantity of the second filtrate should be taken for the next estimation. After a little practice, it will be found that the ten minutes' heating gives ample time to carry out the titration of previous lot, as well as prepare the next lot, so that it is possible for a skilled operator to do an estimation every ten minutes. For each batch of alkaline copper iodate mixture that is made it is necessary to find the value of the "blank" by starting with 3 c.c. of the mixture,

adding 20 c.c. of distilled water only, and proceeding adding 20 c.c. of distilled water only, and proceeding exactly as above. The value will usually be between 4.5 and 5.0 c.c. The difference between the amount of N/200 thiosulphate 'used in the "blank" and the amount used in the estimation on the urine gives the "thiosulphate deficiency," from which the percentage of reducing sugar present in original urine can be seen from a table drawn up by the author. The N/200 thiosulphate must be made fresh each day from a stable N/10 colution and the starch solution also should be made fresh solution, and the starch solution also should be made fresh when required. The KI solution, and the alkaline copper iodate mixture, will keep perfectly for at least twelve months if stored in bottles of actinic glass, and not exposed to direct sunlight. Practically this method has been tried by the author on nearly a hundred samples from widely different cases, and with no further precau-tions than those mentioned above he has had no difficulty in obtaining consecutive readings agreeing within 5 per cent or less. A number of leading bio-chemists, using the methods described above, have made elaborate investigations of the effect on the reducing sugar content of the urine of various factors such as diet, time and period of collection, etc., and the author included in his paper a summary of the results obtained by these workers, with some notes based on his own experiences. In reference to the fact that the inclusion of a large amount of carbohydrate in the diet tends to raise the percentage of reducing sugar in the urine, it should be stated that considerably different results are noticed when different kinds of carbohydrates are taken. In this connection he remarked that glucose (dextrose) seems to have most effect, sucrose (cane sugar) and lactose (milk sugar) rather less, and dextrins appear to be best tolerated. In the author's opinion there can be no possible objection to the use of sugar of milk as an excipient in various pharmaceutical preparations, even when they are to be taken by advanced diabetics.

SUMMARY

1. Attention is drawn to the importance of carrying out accurate estimations of small amounts of reducing sugar in urine, especially in connection with examination for life insurance.

2. The qualitative methods in general use are shown

to give unreliable results.

3. The ordinary methods of estimating reducing sugars are shown to be unsatisfactory for determining the small amounts of reducing sugars in normal urines.

4. Various micro-methods are discussed, and the most

suitable one is adapted for use by the pharmacist.

5. The effects of diet and time of collection of

samples are described, and the pharmacist is shown how to make allowance for them.

The author expressed his thanks to Drs. W. B. Paterson and H. R. Hurter, of Grassendale, for kind permissoin to publish the results of work done in co-operation with them, and to Mr. W. Doran, M.Sc., A.I.C., for advice in connection with the work. The practical work was carried out at the Grassendale Biochemical

DISCUSSION

Mr. GERRARD reminded the Section that forty years ago he made a communication on sugars in urine to the Press, and published a formula, similar to that of Dr. Pavy, but with potassium cyanide in place of ammonia. Ordinary methods were very crudely done as a rule. A day's output of urine should be taken, and, if greater accuracy was desired, a week's output. He commended urine analysis to the attention of pharmacists.

Mr. Stone (Glasgow) pointed out that a high content of carbohydrate in urine might be attributable to more than one cause. Semitic races had a rich sugar content. Once, at a meeting at which members of the lay Press were present, it had been stated that anger increased the amount of sugar in the urine; a poster subsequently appeared, announcing: "The Angrier You Are, the appeared, announcing: Sweeter." (Laughter.)

(Laughter.)

Mr. Hampshire asked the author to explain the necessity of determining small amounts of sugar in urine in face of the statement that such quantities are normally present. Fehling's solution was said to be specially valu able because it did not give a reaction with very small

quantities of sugar. The glucose problem by the author would be a very lengthy one. The glucose problem suggested the methods indicated required considerable practice.

Mr. Crossley Holland remarked that it was now

being taught that small quantities of sugar in urine were of great significance in disease. Sugar was remarkably constant in the blood, but varied in the urine. He inquired whether the author had any methods of detections.

ing sugars other than glucose in urine.

Mr. Wokes, replying to the discussion, said he had not tried the potassium cyanide method of estimation.

A mixed twenty-four hours' sample should be asked for. The physiological factor was a very important one-for example, in a case in which a medical man had to decide whether he was dealing with a case of epilepsy or a case of hysteria. It was useful to be able to detect variations from the normal at once. His own methods reduce any sugars present; these appear to be principally glucose.

The next paper was :-

The Identification by Chemical Methods of Drugs containing Tannins

BY ALAN H. WARE, PH.C. [ABSTRACT]

Through the kindness of Dr. Nierenstein, of Bristol University, the writer had the opportunity of examining a large number of Australian kinos, and also an authentic sample of aromadendrin, the principle which Smith isolated from the kinos of *Eucalyptus calophylla* and *E. hemiploia*. The only reactions which, up to the present, appear to have been recorded for aromadendrin are not very distinctive, and are of little service in detecting the presence of this principle in extractives; but the writer has succeeded in finding a very striking reaction, by means of which the identification of aromadendrin in extractives can be ensured. It occurred to him to apply to a number of complex phenols, and extractives containing them, the hydrogen reduction test, which yields such specific results with flavonols. If, e.g., quercetrin, be dissolved in 90 per cent. alcohol, and a piece of pure zinc or magnesium be added, together with sufficient strong hydrochloric acid to give a steady stream of hydrogen, a pink colour appears slowly, or more quickly if the mixture be warmed. The colour intensifies to a maximum, when it is a deep cerise or red. It then commences to lose in intensity, and if the reaction is continued until the reduction of the quercetrin is complete and all the acid used up, the colour entirely disappears owing to the formation of a leuco-body. In so far as has been described up to this point, aromadendrin behaves exactly similarly, except that the colour given for equal strengths of solution is much more intense for for equal strengths of solution is much more intense for aromadendrin than for quercetrin. Indeed, 0.5 milligram of aromadendrin in 5 c.c. of alcohol will yield a very decided pink to the test. Aromadendrin, however, is not a flavonol, for the coloured body produced is not an anthocyanin as in the case of quercetrin. This can readily be shown by adding alkali. With quercetrin, if the alkali be added when the reaction is complete, the colourless solution acquires a distinctive purple colour, or, if added at the earlier stage referred to, when the red colour is at its maximum, a deep green colour is given, due to the combined effects of the colour is given, due to the combined effects of the anthocyanin with the still unaltered portion of the flavonol. No such results are given by aromadendrin.

The Application of the Test to Extractives.—

If a kino or a cutch is to be tested, it is powdered and

If a kino or a cutch is to be tested, it is powdered and rubbed into a paste with cold water, further diluted, and shaken out with ether. The ethereal solution is then separated and the ether allowed to evaporate. The residue is dissolved in 90 per cent. alcohol and tested as previously described. The following kinos all gave a first-rate response to this test, viz., those from Eucalyptus calophylla, E. hamastoma, E. Ieucoxylon, E. exima, E. Viminalis, E. maculata, and that from Angophora intermedia. A very definite, but less intense, pink colour was yielded by the kinos from E. Gunnii, E. punctata, and E. conacea; and also by an excellent old-fashioned pharmaceutical red gum from an unidentified species (probably E. rostrata). Further, very definite positive results were

given by Acacia catechu heartwood, by a genuine acacia cutch, and by a sample of acacatechin. Poor positive results to the test were yielded by Malabar kino and the kinos from E. sidersphloid and E. piperita; and also by divi-divi, cloves, and the barks from Acacia decurrents and A. pycnanthia. Negative results were yielded by Butea gum, gambier, cocoa, rhubarb, and the kincs from Eucalyptus microcorys and E. phellandra. Aromadendrin is believed to be a benzophenone body. In certain respects it resembles the catechins. Acacatechin, too, is related to the benzophenones; the definitely positive, but not intense, colour-reactions given by acacia heartweed consistent the second of the property of second of the property of the second of the property wood, acacia cutches, and the one sample of acacatechin examined by the test described, are probably due to the presence of a decided trace of aromadendrin, and the presence of a decided trace of aromadendrin, and not to the acacatechin itself. Aromadendrin, however, is probably related to both the catechins and the anthoxanthins, to the last not merely because of the similarity in many respects of the colour-reactions already described, but because it yields by dehvdration a yellow colouring matter, kino-yellow. This is apparently an oxonium compound, closely resembling, in certain respects, the catechol, and, more especially, the phloroglucinol-catechol anthoxanthins. The following test for the detection of kino-yellow, devised by the writer, will illustrate this apparent relationshin: illustrate this apparent relationship :-

Test for Kino-Yellow.—Make an alcoholic extractive of the kino. Place a few c.c. in a porcelain dish, add of the kino. Place a few c.c. in a porcelain dish, add a few drops of dilute sulphuric acid, and partially evaporate, occasionally tipping the dish in such a way that a film of liquid dries on the side of the dish, and is subjected to the required temperature. A very decided and sometimes brilliant, but transient, yellow colour-reaction is given prior to caramelisation. This reaction is similar to that given by quercetrin and luteolin, and to a lesser extent by gentisin, and has been found by the writer to be one of the best aids to the found by the writer to be one of the best aids to the detection of such bodies in plant extractives. The writer has applied this test to an exceedingly large number of plant extractives and finds that the reaction is seldom given unless an anthoxanthin of some kind is present

in very appreciable quantity.

Two New Classificatory Tests for Tannins

The writer describes in this paper two new tests, which are further modifications for particular purposes of the ferric citrate precipitation test already described

Test 1.-5 c.c. of a fresh aqueous extractive, or of a water-diluted commercial extractive, is boiled with 10-12 drops of acetic acid (33 per cent.) and 5 c.c. (or more, if necessary) of an aqueous solution of the citrate of iron and ammonium of the British Pharmacopæia (0.25 per cent.). The mixture is then cooled and filtered. One gram of ammonium chloride is now added and the solution is again boiled. A precipitate indicates the presence of pyrogallol-tannin (non-phlobatannin). Should there be no precipitate, phlobatannin, if present, can be precipitated by adding a slight excess of solution of ammonia, and again boiling. A precipitate given by such an addition may, however, indicate one of the anthoxanthins previously referred to, or a mixture of phlobatannin and anthoxanthin. The presence of phlobatannin may, however, be readily confirmed by the application of the formaldehyde and hydrochloric acid test described in the paper read at last year's Conference. By the application of both the ferric citrate test with ammonium chloride and acetic acid and the formaldehyde test to separate portions of extractive, tannin-containing bodies can be readily and distinctively classified under three heads, viz. :-

I. Substances containing phlobatannins and no other tannins. These, in extractive, give a characteristic precipitate to the formaldehyde test, but not to the new ferrio citrate test just described. Examples are gambier, acacia cutch, krameria roots and cinnamon bark; also iron-blueing phlobatannin bodies, such as Acacia decurrens bark.

II. Substances containing pyrogallol-tannins and no philobatannins. With these the results given to the two tests referred to are the converse of those given by bodies in Class I. Examples are commercial tannic acid, Aleppo, Basra, and Chinese galls, myrobolans, pomegranate and hamamelis barks, and bearberry leaves.

III. Substances containing tannins of both classes, giving characteristic positive results to both tests, e.g., oak bark, tea leaves, pimento berries, and Acacia arabica bark.

The writer claims that the new test affords the most specific test for pyrogallol tannins which has been yet devised. As an illustration of this, he has been able, by means of it, to show that the tanniu in kousso is a typical pyrogallol-tannin, although an extractive of this drug is markedly iron-greening. That the irongreening colour-reaction is not due to a phlobatannin but to an anthoxanthin can be shown by the formaldehyde and other suitable tests.

Test 2.—5 c.c. of the extractive are boiled with 1.5 grams of acid sodium phosphate (NaH₂PO₄) in small crystals. The mixture is filtered, and the filtrate is boiled with the ferric citrate solution. Unless present in very small quantity (when a violet solution is given), gallotannins are partially or completely pre-cipitated as violet iron-compounds, and ellagitannins as green-black compounds, whilst tannins of hamamelitannin type are usually not precipitated, but give a deep brown solution. Should tannins of this last class be pre-cipitated, the iron-compound is always definitely brown and not violet or green-black. Should gallotannin be present with tannins of the other classes, in any appreciable quantity, the violet colour due to the gallotannin compound with iron will predominate, with respect to any precipitate produced. Phlobatannins are not preany precipitate produced. Phibbatanins are not pre-cipitated on boiling with the ferric citrate solution, but are better distinguished by the first test and the formaldehyde reaction. The method is, however, very useful in distinguishing hæmatoxylin. Neither this body nor the tannin associated with it in logwood are precipitated by this test, but a brown solution is given. This suggests a relationship between these bodies and hamamelitannin. Anthocyanins also are not precipitated, but give a brown solution. Bodies containing typical pyrogallol-tannins and no phlobatannins can therefore,

(1) Contain gallotannin, but very little or no cllagitannin. These give a blue or violet solution when boiled with Mitchell's reagent and acetic acid, a violet precipitate to the test with di-hydrogen sodium phosphate and the ferric citrate solution, and a brown colour-reaction to the test with sodium nitrite. This is a small class and includes commercial tannic acid, Chinese galls and sumach.

with few exceptions, be conveniently primarily classified

for identification purposes as follows, viz. :-

(2) Contain ellagitannin, but very little or no gallotannin. They may, however, contain tannin of hamamelitannin type. They may, however, contain tannin of hamamelitannin type. These do not give a definitely blue or violet solution to the test with Mitchell's reagent and acetic acid. They give a green-black precipitate to the test with di-hydrogen sodium phosphate and the ferric citrate solution. They give a green colour-reaction to the test with sodium nitrite. This class includes kousso, myrobolans, pomegranate fruit-rind and pomegranate root-bark.

(3) Contain both gallotannin and cllagitannin. To both tests with iron reagents under discussion these will show the reactions of gallotannins, but will give the green colour-reaction to the sodium nitrite test. This class includes Aleppo, Basra and knoppern galls, valonia, divi-divi, the leaves of Eucalyptus globulus, and the kinos from Eucalyptus graphets.

Eucalyptus microcorys and E. maculata.

(4) Contain tannins of hamamelitannin type and very little or no ellagitannin or gallotannin. These do not give a blue or violet solution to test with Mitchell's reagent and acetic acid. They give a brown solution or, occasionally, a brown precipitate to the test with di-hydrogen sodium phosphate, and ammonium ferric citrate. They give a brown colour-reaction to the test with sodium nitrite. This class includes hamamelis leaves and bark, cloves, bearberry leaves, and the tannin in logwood leaves, and the tannin in logwood.

With reference to tannins of the last class, it may be pointed out that hæmatoxylin, which so closely resembles them with respect to certain reactions, is, of course, readily distinguished by other tests, notably that with alum, which gives a purple colour-reaction with hæmatoxylin, by means of which it can be readily detected in logwood extractive, even when this is admixed with many other vegetable extractives. With respect to the salting-out or precipitation of these tannates of iron from the complexes described, the extreme sensitivity in this connection of the ferroso-ferric gallotannate is extra-ordinary. Probably the majority of salts will cause more or less precipitation of this body from a complex

of the kind described if the tannin is present in fair proportion. Precipitation may even be affected by as little as 5 c.c. of a 1 in 4,000 solution of strychnine hydrochloride, if this be boiled with 5 c.c., each, of a solution of gallotannin and Mitchell reagent, in the presence of 10-12 drops of 30 per cent. acetic acid. This is equivalent to about 0.001 gram of strychnine in a 1 in 12,000 admixture. The author presented four tables for the identification of seventeen kinos, which, in addition, serve to illustrate the manner in which several of the new tests used by the author may be very usefully applied to the identification of tannin-containing bodies, especially extractives, in general. The following kinos would, judging from the samples examined, answer the B.P. requirements for Kino Eucalypti, viz., those from E. calophylla, E. microcorys (this being a typical pyrogallol-tannin body, would give a yellow to brown, not a red, tincture), and Angophora intermedia; but none of these are as soluble as an excellent pharmaceutical "red gum" from an unnamed species examined, and which, notwithstanding the fact that it is thirty years old, is still almost entirely soluble in water. The experiments in connection with these investigations were carried out the pharmaceutical laboratory of the University College of the South-West, Exeter.

There was no discussion.

The CHAIRMAN, after thanking the authors of the papers, announced an adjournment for luncheon.

Science Section—Tuesday Afternoon

A small muster of members faced the chairman when he opened the proceedings shortly after 2.15 on Tuesday afternoon. The first paper, read in abstract by Mr. C. H. HAMPSHIRE, was :-

Cochineal: The Utility of Assay Methods in the Estimation of Comparative Colour Values*

By A. O. Bentley, Ph.C., and S. Meakin [ABSTRACT]

This paper was an account of an attempt to find a method of standardisation for cochineal as suggested by the Conference Research List, a volumetric or gravimetric method of assay that would give a clear and definite indication as to the quality of the drug, so that there might be laid down a minimum standard, based upon such an assay, to which samples of the drug could be required to conform before being accepted as of pharmaconysial quality. It was impossible to form any original macopæial quality. It was impossible to form any opinion as to the relative qualities of samples by preparing tinctures of official strength, which vary from a dirty reddish-brown to a dark plum-colour, and contain large quantities of a flaky deposit. In order to compare the colours, solutions baving a strength of 1 part of drug in 1,000 of alcohol (45 per cent.) were made of all samples, and the variation in colour of these was most remarkable. The authors then discussed the volumetric and gravimetric methods in use for the assay of cochineal, whereupon they described the colorimetric methods. The underlying fault of all colorimetric estimations is that they must be based upon a standard derived from what, in the opinion of the operator, is a good sample; and as will be shown, the fact that a dilute cochineal solution, or a dilution of a strong tincture, has a pale yellowish-red colour does not necessarily imply that it is made from a poor sample of drug. Taking into consideration the divers means by which the insects are killed (exposure to fumes of burning charcoal or sulphur, stove heat, hot water) and the different substances with which they are so often "dressed" or sophisticated (talc, barium carbonate and sulphate, lead carbonate and sulphate, graphite, ivory black, manganeso dioxide and black iron sand, any of which may be impure), it seemed reasonable to suspect that these factors would have some effect upon the hydrogen ion concentration of cochineal solutions. If this were the case, such effects would most probably be manifested in the colour of the solutions, since cochineal acts as a fairly good indicator. On the other hand, cochineal contains a quantity of proteid matter which might be expected to prevent any such changes in hydrogen ion concentration as could be

^{*} Contribution from the Pharmacy Department, University College, Nottingham.

occasioned by the minute quantities of foreign substances present in a dilute aqueous or alcoholic solution: although it might be that the proteins present would be incapable of exerting the buffer effect over the range of PH through which cochineal changes from yellow to violet.

The Influence of a Buffer Solution.—To test these hypotheses, cochineal solutions of standard acidity were made and compared with ordinary solutions of equal strength. Cochineal changes, yellow >red > violet over a range PH. 4-5-6, so that acetate buffer mixture which exerts its greatest effect from PH 4 to PH 5.5 was selected. The buffer solution was prepared by mixing 100 c.c. of N/1 acetic acid with 70 c.c. of N/1 sodium hydroxide and diluting to 500 c.c., these quantities being calculated to yield a solution of PH 4.99. Comparisons were made of the colours of solutions of samples of cochineal prepared by macerating 1 of powdered drug in 1,000 of alcohol (45 per cent.) for 48 hours with those of corresponding solutions prepared, using a menstruum containing 25 per cent. volume of the buffer solution and 45 per cent. volume of alcohol.

The most noticeable feature in the results of a wide

range of tests is that in the absence of buffer solution the colours tend towards orange far more than in the

presence of buffer colution.

Practical Application.—The next step was to ascertain whether like effects were given with strong solutions such as the official tincture. It was found in the first place that 10 per cent. of cochineal is an excessive amount to use. When 5 per cent, of drug is employed there is produced a much brighter tincture having very nearly the same colouring power as the 10 per cent, preparation. Experiments with the best complex of sectional in the author's recession and also complex of sectional in the author's recession and also complex of sectional in the author's recession and also complex of sectional in the author's recession and also complex of sectional in the author's recession and also complex of sectional in the author's recession and also complex of sectional in the author's recession and also complex of sectional in the section of th samples of cochineal in the authors' possession, and also with the worst, preparing 1, 2.5, 5; and 10 per cent. tinctures in alcohol (45 per cent.) without buffer solution, showed considerable variations in colour between tinctures of the same strength. They then prepared similar tinctures containing various quantities of buffer, and found that 5 per cent. of buffer solution was sufficient to control the colours.

A possible objection to the use of acetate buffer mixture in tinctures of cochineal might be based on therapeutic in tinctures of cochineal might be based on the apeutic grounds. In this connection the authors submit the following facts: The buffer solution used contained sodium acetate 5.74 grams in 500 c.c. In 100 c.c. of tincture they used 5 c.c. of buffer solution, so that in 5 c.c. of tincture (such as might be dispensed in a 6-oz. bottle of medicine) there would be sodium acetate 0.0028 gram and 0.00009 gram free acetic acid, which quantities would be without the slightest pharmacological

action, especially when divided into doses.

The authors suggest the following formula for the preparation of a tincture of cochineal that will be of the same colour, for all practical purposes, whether the crude drug from which it is prepared be of good, medium or even poor quality, excluding samples having an ash over 10 per cent., and, of course, exhausted samples:—

Cochineal ... 50 grams 7 c.c. Normal solution of sodium hydroxide ... 7 c.c.
Normal solution of acetic acid ... 10 c.c.
Alcohol (90 per cent.) 500 e.c.
Distilled water ... 510 c.c.

Macerate the cochineal in the mixed liquids for fortyeight hours and strain the resulting tincture through glass wool. Set aside for fourteen days and then filter.

Conclusions

(1) The ordinary methods for the estimation of cochineal are of little use in the valuation of the colour of its solutions. (2) Cochineal is an indicator, and the colours of its solutions vary according to their hydrion con-centration. (3) The methods of killing the insects and the common adulterants tend to produce solutions of different PH, but the colours can be controlled by the inclusion of acetate buffer mixture. (4) The amount of cochineal used in the official tincture is unnecessarily high (10 per cent.). A formula is given which includes 5 per cent. of cochineal and sufficient acetate buffer mixture to control the colour, even on dilution, but which is so small as to be without pharmacological action.

In conclusion, the authors expressed their indebtedness to Dr. E. B. R. Prideaux, D.Sc., M.A., F.I.C., for several suggestions, and to Mr. H. Droop Richmond, F.I.C., for providing samples with tintometer figures and for permission to examine the apparatus; also to Boots Puro Drug Co., Southall Bros. & Barclay, and The British Drug Houses, Ltd., for a number of specimens.

DISCUSSION

Mr. Evers confirmed the authors' experience that samples prepared with 45 per cent, alcohol vary. He himself always added a sufficiency of hydrochloric acid. Possibly the buffer solution might be an improvement, but the hydrochloric acid method was the readiest.

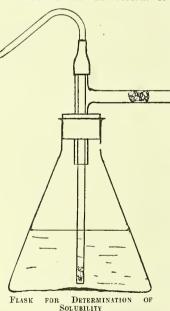
Mr. Merson (Edinburgh) remarked that methods towards standardisation dating back twenty years were rather more crude than those of to-day. Treatment with free chlorine was devised as a rough test of tinctorial power. He had found samples giving up to 25 per cent. of ash.

The next paper, presented by Mr. Norman Evers, was :-

The Picrates of the Opium Alkaloids

By Cyril W. Maplethorpe, Ph.C., A.I.C., and Norman Evers, B.Sc., F.I.C.

In the course of some work on the alkaloids of opium it was found that the records of the properties of the



picrates were somevhat scattered and inconsistent. I t was, therefore, decided to prepare these. compounds and find their melting points and solu-bilities in alcohol, acetone and water, and to make drawings of the crystals under the microscope. The alka-loids were in all cases tested in order ensure their purity before mak-ing the picrates. These picrates were made by dissolving the pure boscs (1-2 gram) in a slight excess of N/10 hydrochloric acid, and adding to this solution as excess of cold saturated aqueous picric acid. The precipitate was allowed to settle,

drained on a Buchner funnel, and then rc-crystallised from a suitable solvent, usually 50 per cent. alcohol, until a product of constant melting point was obtained. A small amount of "Norit" charcoal was added in some cases to clear the hot solution before crystallising. Samples on which the melting points were to be determined were crystallised by rapid cooling, drained on a porous tile, and dried at 100° C. for fifteen minutes. The melting-points given are corrected for the emergent steam of the thermometer according to the B.P. method. For the determination of solubilities, saturated solutions containing precipitated crystals were set aside in an incubator, maintained at a constant temperature for in an incubator, maintained at a constant temperature for two days, which was found to be a sufficient time for equilibrium to be reached. The aqueous solutions were then poured off through a filter into tared weighing bottles, weighed, and evaporated to dryness in the weigh-ing bottles at 100° C. The residue after cooling in a desiccator was weighed, and the result expressed as percentage of solid on the weight of solution. The solu-

tions in acetone and alcohol were decanted into weighing bottles by means of the apparatus illustrated in the figure, which is similar to a small wash-bottle, having a plug of cotton wool in the bottom of the exit tube and another in the mouthpiece. Evaporation during the transference of the solution was thus avoided. The alcoholic solutions were evaporated in a vacuum desiccator over calcium chloride, and the acctone solutions by exposure in an incubator at 37° C. The residues from both series of solutions were dried at 100° C. for fifteen minutes, and then weighed. The general method of analysis used were to make the calculate of the control o analysis used was to make the solution of the alkaloidal picrates alkaline with sodium hydroxide and extract the alkaloid completely with chloroform. The chloroform was distilled off and the alkaloid dried and weighed. The aqueous liquid was acidified, and the picric acid extracted with ether and weighed. In the case of morphine picrate the alkaloid could not, of course, be extracted in this manner, and here only the picric acid was determined.

	Melting	Solubil		
	point.	Water	Absolute alcohol	Acetone
		Per cent. At 20°C.	Per cent. At 20°C.	At 20°C.
Morphine picrate	163°-165°C	. 0.22	0.14	13.86
Codeine picrate	196°–197°	0.11	0.095	3.89
Thebaine picrate	217°	0.20	0.10	10.1
	(with de-			
	compo- sition)	191		
Narcotine picrate	174°-175°	2.02	0.13	0.30
Papaverine picrate	181°-183°	0.007	0.052	1.89
Narceine picrate	195°	0.027	0.01	5.23
*		At 15°C.	At 15°C.	At 15°C.
Cryptopine picrate	161°-163°	0.007	0.022	0.162
Gnoscopine picrate	185.5°	0.009	0.04	2.34
Xanthaline picrate	212.5°	0.01	0.022	0.34

From a study of these figures the following points are noteworthy:

(1) The disagreement of some of the melting-points

obtained with published figures.

(2) The solubilities in water of the picrates of morphine, codeine, and thebaine as compared with those of the other opium alkaloids.

(3) The high solubilities in acetone of the picrates of the opium alkaloids and the slight solubility in absolute

alcohol.

In conclusion, the author thanked Allen and Hanburys, Ltd., in whose laboratories this work was carried out, for permission to publish the results.

In presenting his paper, Mr. EVERS explained that one method of making insulin depends on the use of picrates as a precipitant. It occurred to the authors that this method might be applied to alkaloids.

DISCUSSION

Mr. GERRARD inquired whether experiments had been made by the authors on mixtures of the opium alkaloids or only on single ones. It might be exceedingly difficult to separate the alkaloids from the precipitate of total alkaloids.

Mr. Evers replied that there had been no intention of trying to separate the alkaloids, but only to precipitate

the total alkaloids.

The next paper, presented by Mr. Norman Evers,

The Increase in Specific Gravity of Easton's Syrup and Syr. Ferri Phosph., P.B., on Keeping

By Charles M. Caines, F.I.C., and Norman Evers, B.Sc., F.I.C.

[ABSTRACT.]

RECENTLY the authors had occasion to redetermine the specific gravity of a sample of Easton's Syrup which had been kept for a few months. The result obtained was appreciably higher than the earlier one. At first they were inclined to attribute this to an error in the determination; but redeterminations carried ont on other samples showed a similar increase in specific gravity, and

the increase appeared to be the greater the longer the period that the samples had been kept. On thinking the matter over, it occurred to the authors that, if inversion of the cane sugar was proceeding during keeping, on theoretical grounds this would account for an increase in the specific gravity. The inversion of the cane sugar in specific gravity. Easton's Syrup by the acid present during storage has been referred to by others; but they were unable to find any previous reference to a change in specific gravity.

Samples of Easton's Syrup were examined periodically from the time of their manufacture; one prepared February 25, 1924, had an original sp. gr. of 1.278, which had increased to 1.2875 on June 25, 1925. The other, prepared on April 22, 1924, had an original sp. gr. of 1.280. which had increased to 1.2845 on June 25, 1925. A sample of Syr. Ferri Phosph., P.B., was examined periodically in the same way, and it was found that the sp. gr. had increased from 1.2765, on March 3, 1925, to 1.2890 on June 3, 1925. The results of these examinations were presented in tabular form by the authors. It will be seen from these results that the theoretical considerations are borne out by the practical results, and that there is an increase in specific gravity concurrently with the inversion of the sugar. The authors expressed their thanks to Allen and Hanburys, Ltd., in whose laboratories this work was carried out, and to Mr. R. V. Jury for carrying out the analytical determinations.

Discussion.

The CHAIRMAN having, with brief comments, invited discussion,

Mr. A. J. Jones (Liverpool), confirming the author's experience, said that in cold weather big deposits of dextrose came out. Perhaps it was not necessary to use so much cane sugar at the start. The increase in gravity had some commercial bearing, in that the syrup was sold both by the gallon and by the pound. In one case there would be 15 lb. difference on 100 gallons.

Mr. Mann (Birmingham) remarked that he had found

the deposit in his own experience, and was glad to learn

from the author why it was.

Mr. Evers, replying to the points raised, pointed out that the abstraction of water during inversion caused increase in gravity and precipitation.

The next paper, presented by Dr. W. M. Cumming, was :-

The Identification of Alkaloids *

By William M. Cumming, D.Sc., F.I.C., and Derek G. Brown, B.Sc., A.R.T.C., A.I.C.

[Abstract]

MUCH work has been done on the identification of alkaloids, using different reagents, such as chlorides of gold, platinum, and mercury, potassium hydroxide, phospho-tungstic acid, phosphomolybdate, potassium permanganate, potassium iodide, potassium cyanide, picric acid, and many special reagents. Some of the precipitates formed by such reagents have been examined under the microscope, and have shown marked crystalline formation. Scattered references appear in the literature to the action of ferro- and ferri-cyanides on alkaloids, but no systematic study has been made. In the course of work already published by one of the authors, it was shown that hydroferro- and hydroferri-cyanic acids combine with aromatic bases in acid, neutral, and alcoholic solution, and that the composition of the salts of the same base obtained under these different conditions are different. It is this fact which makes the method valuable for the detection and identification of alkaloids. It was early recognised that the nature of the crystalline precipitate formed afforded a ready method of identifying organic bases, and particularly alkaloids. These salts organic bases, and particularly alkaloids. These salts may be used for the isolation, identification, separation, and estimation of many organic bases, and it is hoped to apply these methods to alkaloids. The procedure adopted was to add a cold saturated solution of potassium ferrogeness. or ferri-cyanide to an acid solution (i.e., to Congo Red) of the alkaloid in dilute hydrochloric acid. When the precipitation is complete the solution must still give ar acid reaction. In the preparation of the "neutral" salts, the solutions of the potassium salts were added to

^{*} Contribution from the Royal Technical College, Glasgow.

a solution of the hydrochloride of the base, the precipitation being assisted in some cases by the cautious addition of dilute hydrochloric acid, still keeping the solution neutral to Congo Red. The alcoholic salts were prepared by adding a saturated solution or hydroferro- or hydroof the alkaloid. Ether was added in some instances to induce precipitate was thrown down at once. The solutions of the alkaloid and reagent were then diluted until the precipitate was of definite crystalline form when examined under the microscope. The amount of dilution was noted, and although the simiting dilution has not yet been determined, definite crystalline form was obtained—in the case of strychnine, for example, with 1 part of alkaloid in 2,000 parts of solution. The microscopic examination affords a ready method of identifying the alkaloids in minute quantity. The method used in this work differs from any hitherto employed. It has been customary to from any hitherto employed. It has been customary to spot the two reagents on a microscopic slide and to induce crystallisation by rubbing with a glass rod. This causes distortion of the crystals; and, in any case, crystals do not grow regularly on a flat surface. To the solution of the alkaloid of known concentration a drop of a strong solution of the reagent is added. The whole is set aside for a short time until crystallisation sets in. An amorphous precipitate or croplescence, due to impunities amorphous precipitate or opalescence, due to impurities, is sometimes formed in small quantity as soon as the reagents are mixed; this is removed by filtration before setting aside. A drop of the liquid containing the cryssetting aside. A dip of the induction and its distribution of the induction and examined. It is believed by the authors that the more marked crystalline formation obtained by the foregoing method adds considerably to the reliability of the tests. No precipitate of definite composition has been obtained so far in the case of the hydroferri-cyanides precipitated in neutral solution. In a table the authors give the constitution and percentage iron content of eight salts examined by this method.

DISCUSSION.

The CHAIRMAN hoped that the authors would pursue this investigation. It was very useful to get an indica-Mr. Finnemore remarked that colchicine had given a

lot of trouble and inquired whether the authors had been able to obtain it in a crystalline form.

Mr. Lescher suggested that the paper opened up possibilities of greater knowledge where criminal investigation was concerned.

Mr. Mann (Birmingham) pointed out that there were very small differences in the precipitates obtained, and asked whether those figures could be altered by variation of conditions.

The CHAIRMAN said that each alkaloid appeared to have three different forms; if those forms were constant, there

was a triple confirmation of the identity of an alkaloid. Dr. Cumming, replying to the discussion, urged that in precipitation by his method one got the actual constitu-tion. Anyone could analyse to the degree of accuracy represented by the intervals in the table given. As to the drop method, there were five, not three, lines of evidence. Colchicine was one of the alkaloids now under investigation; A burette could be devised to work with smaller quantities.

The next paper was :-

West Australian Sandal Wood Oil BY HORACE FINNEMORE, B.Sc. (LOND.), F.I.C.

[ABSTRACT]

Attempts to introduce a new natural product have ATTEMPTS to introduce a new natural product have always a claim on our indulgence, and especially is this the case when it is a product of the Empire that is under consideration. In recent publications there seems a tendency to assume that West Australian sandal wood oil has already established a right to be regarded as the equivalent of the East Indian, and worthy of immediate recognition by inclusion in the British Pharmacopæia. West Australian sandal is a small tree about 30 feet high, distributed over a region about twice the size of Great Britain. Its distillation began many years ago, and was carried Its distillation began many years ago, and was carried

on in a somewhat desultory manner until about 1901, when its production became more organised. During the last few years both wood and oil have been produced in quantity, and as far as the latest figures are available over 7,000 tons of wood were exported to China in 1914, and wood to the value of £8,370 was exported to India in the same year, while in the year 1918-19 the value of the exported wood was £117,000, and 3,720 lb. of oil was exported. In comparison it may be stated that over 55,000 lb. of Mysone distilled oil was exported in 1921. In discussing the distinct oil was exported in 1921. In discussing the correct classification of the botanical source of the tree, the author quoted a communication from Mr. Holmes to the effect that Fusanus spicatus, R. Br., must be the name used now by all English botanists, and that Scatalum cygnorum must for the present remain a synonym. Provided that the chemical identity of the constituents of the oils had been the same, the author would have been inclined to concede this point in nomenclature, particularly as the differences between the genera Fusanus and Santalum appear to be very slight. But even in that case, and ignoring the rules of the botanical game for the moment, and calling this sandal wood oil instead of fusanus oil, no one this sandal wood oil instead of fusanus oil, no one would suggest that one eucalyptus oil, for example, could be substituted for another from a different species unless the chemical constituents were identical. After reviewing the results of chemical examinations, the author remarked that there is certainly a great similarity in the alcoholic constituents of the two oils, inasmuch as both contain a high proportion of sesquiterpene alcohols. The similarity ends there. Those of the East Indian oil are primary alcohols; α -santalol, which constitutes the larger proportion of these, is a singly unsaturated substance to which a definite chemical constitution has been assigned, while β -santalol, about which little is known, except that it is present in smaller quantity, is a doubly unsaturated body. The fusanols, on the other hand, judging from the sluggishness with which they react with phthalic anhydride, are not primary alcohols. Furthermore, in so far as they resemble the santalols, it is to the \(\theta\)-santalol, not necessarily, the less important although present is resulted. resemble the santaion, it is to the B-santaion, not necessarily the less important, although present in smaller proportion. With regard to the other constituents of the two oils, there are nearly a dozen well-defined non-alcoholic substances in the East Indian oil, perhaps of little importance medicinally, but having doubtless some influence on the odour and taste; the sesquiterpene a-santalene has been shown to possess a definite relation-ship in its composition to that of a-santalol. In the case of the West Australian oil very little seems to be known. "Sesquiterpene-ethyl" is mentioned in the literature, but the name conveys no meaning. We have seen that in its botanical source, its chemical composition, and physical properties, West Australian oil differs from the East Indian. It may eventually prove as efficacious medicinally or even superior, as the reports would seem to show, but in any case it should for the present be kept quite distinct. If the fact of containing a high proportion of sesquiterpene alcohol be taken as the standard, there is no logical ground for refusing to recognise the West Indian oil or any other oil containing sesquiterpene alcohols.

Discussion.

Dr. Percy May thought that although Mr. Finnemore had given a very interesting review of the published work on West Australian sandalwood oil, the authorities quoted by him were of no value with reference to the oil now being exported by the leading Australian firms. The supposed proofs of the differences between the chemical constitution of the Australian and Indian sandalwood oils rested on the examination of oils quite different from the good-quality West Australian oil now exported. For instance, Rao and Sudborough quote four sets of conflicting figures for the physical contents of the oil. One which was distilled by themselves had a rotation of -7.7° , and another, obtained by purchase, had a rotation of -0.7° , and their actual investigations appear to have been made with the last-named, as the rotation calculated from the mean of the fractions of the saponified and fractionated oil appears to have been about _ 1°. The good West Australian oils now on the market have a

rotation of about — 7° to — 8°, and contain about 95 per cent. of alcohols, calculated as santalol. Contrary to the results of Rao and Sudborough, the West Australian oils which he had examined gave no fractions with a positive rotation, but yielded fractions the negative rotations of which successively increased, the last being about — 10°. He (Dr. May) had isolated the alcohols from West Australian oil of good quality, and found them to have a definite negative rotation, this being greater in the higher boiling fraction. The statement by Rao and Sudborough that the alcohols from Australian oils are probably secondary, while those from the Indian oil are probably primary, rested on no real foundation. There seemed every reason that the B.P. specification for sandal-wood oil should be made to include the West Australian oil.

The CHAIRMAN remarked that the problem was to get the oils accurately determined. The pharmacological results could be done separately.

A vote of those present was then taken on the provenance of the two samples handed round, and the result was declared correct.

Mr. Finnemore said that he desired to acknowledge the assistance of Messrs. Plaistowe and Messrs. Bush in supplying the samples of Australian and East Indian oil respectively.

Dr. May added that English-distilled oils were sweeter

than those distilled in Mysore.

Mr. Lescher agreed that Indian-distilled oil was nothing like so fine as English-distilled oil. Little, he said, was distilled here now.

The next paper was :-

Bismuth Carbonate: Some Factors Affecting its Physical Condition*

By A. J. Jones, Ph.C., A.I.C. [ABSTRACT]

On turning to some of the earlier pharmacopæias, and to chemical books of reference, one usually finds bismuth carbonate described simply as a white powder. The B.P.C. describes it as a powder of variable density; but there appears to be nothing in the literature dealing with the cause of the variation, such as may be found in connection with magnesia, magnesium carbonate, chalk, etc. Bismuth carbonate is usually recommended to be prepared by the interaction of a solution of the nitrate with a solution either of ammonium or sodium carbonate, and the text books make no suggestion that the reaction is in any way complicated. Since the problem had to be attacked without any guide as to the influences at work, the only way of approach was by taking haphazard, though reasonable, quantities for an initial experiment, and then to vary these in the hope of seeing in which direction variation of character might be looked for. Stated thus, the procedure to be followed sounds simple enough, but a great deal of tedious work was passed over without yielding any useful results. While maintaining apparently quite any useful results. While maintaining apparently quite similar conditions, results would sometimes repeat themselves, yet at others they would be quite dissimilar; and, on the contrary, varied conditions would yield similar and comparable products. So that it soon became evident that quite a number of factors were involved, which might include time of digestion of the precipitate coupled with probable hydrolytic effects, effects of washing, conditions of drying, and so on. At the outset three experiments were made to test the effect of variable dilutions, and from the results it appeared that the concentration and from the results it appeared that the concentration of the soda solution was an important factor, and probably more so than that of the bismuth Further tests seemed to show that both increase and decrease of the excess of soda causes an alteration of the precipitate, making it much denser; and that increase in the temperature of the reaction also had a pronounced effect. a good deal more work it was found that by operating at a temperature of 45° C. consistent and good results were obtained. At the same time, the idea presented itself that the concentration of the reacting solutions might not be entirely responsible for the different effects, but that the difference in ratio between the amount of bismuth precipitated in normal carbonate solution and that brought

down in bicarbonate solution might very well have some-thing to do with the results. For it is clear that on entering an acid solution of bismuth into a solution of sodium carbonate, the first reaction is with normal carbonate, and this continues until so much CO₂ has been liberated as will convert the remaining carbonate into bicarbonate, which latter goes to complete the reaction. Prompted by this idea a series was set out in which increasing quantities of alkali were taken. An error of judgment, however, was possibly made in using a solution of a mixture of approximately equal parts by weight of both normal and bicarbonate, rather than keeping to the simple normal carbonate. The results, presented in tabular form by the author, seemed to give evidence that the fractional precipitation did have some bearing on the character of the precipitate, but the question of the concentration of the soda still remained unsettled. In order to test this once more, another series was set out, from which it was clear that the excess of soda has a pronounced effect, and it was therefore necessary to return and test the question of carbonate-bicarbonate ratio again. Reviewing the whole series of experiments, it would appear that light bismuth carbonate results from a rather restricted set of conditions, departure from which can be made in two directions, but either direction tends to give dense powders. It would further appear that fractional precipitation, as between carbonate and bicarbonate, while having some effect is yet of secondary importance in influencing the physical character of bismuth carbonate; but that the concentration of the sodium carbonate solution and the tem-

perature of the reaction are the dominating factors.

There was no discussion. Mr. Jones added to his summary the remark that very light bismuth carbonates do

not necessarily suspend the most easily of any.

The next paper was :-

A Note on the Official Process for Assaying Galenicals of Hydrastis

By Henry B. Mackie, Ph.C., and Hubert A. Cleary, B.Sc., A.I.C.

[ABSTRACT]

THE official process for assaying hydrastis aims at the separation of hydrastine and berberine by making use of the difference in solubilities of the hydriodides of the two alkaloids. This is the usual explanation of the process, but on investigation it has appeared doubtful as to whether these are the true facts of the case. The present notes are the outcome of observations made while assaying hydrastis galenicals, and the authors hope to publish more conclusive remarks at a later date. Berberine hydriodide is practically insoluble in water, while hydrastine hydriodide is completely soluble. These solubilities are not absolute, and it is impossible to obtain a system where hydrastine hydriodide is in solution, while berberine hydriodide is out of solution; this is due chiefly to the fact that the precipitation of berberine hydriodide is a time reaction. time reaction, taking several minutes to approach completion. The results obtained by the official process would appear to be due, therefore, not to a separation of the alkaloids as iodides, but to the choice of the right solvent for the alkaloid being assayed—hydrastine. The authors suggest that if another solvent were employed, which dissolved berberine as well as hydrastine, e.g., amyl alcohol, then both alkaloids would influence the final amyl alcohol, then both alkaloids would influence the final result of an assay, and according to preliminary treatment—time of shaking, etc.—so would discordant results occur. It is not at all obvious what exactly is the object of the preliminary shaking; possibly the time of shaking has a direct bearing on the final results. If the shaking is to hasten precipitation of berberine, then it is useless, as the presence of that alkaloid does not affect the final result as regards hydrastine content. In order to explain the action of the potassium iodide and preliminary shaking, the authors are of the opinion that the subject must be treated from the standpoint of colloid chemistry. Like most other galenicals of this type, the one under consideration—Ext. Hydrastis Liq.—is a colloidal solution. Potassium iodide possesses a high value for precipitating colloids, and is present in sufficient quantity to cause precipitation of the colloidal extractive matter. Consequently, the potassium iodide fulfils a purpose, but not the purpose intended by the B.P. In treating of the precipitation of colloids, one must consider the adsorption

^{*}Contribution from the laboratories of Evans Sons Lescher & Webb, Ltd., Liverpool.

of the ion of the electrolyte used to precipitate them. Hydrastine hydriodide is ionised in solution, and it is not unreasonable to suppose that hydrastine is going to be adsorbed in the berberine precipitate. So far, this possibility has not been investigated, but it is a potential source of error in the process. There is another fact of very great importance which appears to have been overlooked, and this is that, although hydrastine, in common with most other alkaloids, is precipitated by ammonia, unlike them it is soluble in excess. It is, therefore, necessary to aim at adding just sufficient ammonia, since if the this alkaloid will not be completely removed by ether—this, of course, will depend upon the relative partition coefficients. So far as the investigation has proceeded, good results have been obtained by an assay process involving simply the extraction of hydrastine, though the process is not sufficiently worked out to give details.

DISCUSSION.

The Chairman, in inviting discussion, pointed out that the assay of hydrastis has not been so well worked out

as that of many other drugs.

Mr. Mackie suggested that hydrastine would be regarded as more important if standard preparations were available. There had been no previous reference to the insolubility of berberine in ether; the usual state-

ments had been quite wrong.

Mr. Gerrard inquired whether the authors had used chloroform as a solvent. About 10 per cent. of ether went into a watery solution when extracting.

Mr. CLEARY, in reply, said that hydrastine is soluble in chloroform, and varying mixtures of ether and chloro-form were used. The results, however, were discordant, and the authors had been trying to find a method of extracting free from objection.

The next paper, read in abstract by Mr. C. H. Hampshire, was :-

Some Experiments on Phosphorus Pill, B.P.

By F. J. DYER, PH.C., and R. MELVILLE, PH.C.

[ABSTRACT]

In view of the fact that the phosphorus pill mass made according to the B.P. formula melts in the hands of the manipulator and is difficult to round by the ordinary means, an attempt has been made to remedy these defects. The work proceeded along the following lines:—(1) Preparation of pills by the B.P. formula and modifications introducing phosphorated suet, white wax modifications introducing phosphorated suet, white wax and stearin as new ingredients and varying the proportions of sodium sulphate and total fats. (2) Preparation according to U.S.P. IX. (3) Tests for disintegration: (a) At room temperature (15°); (b) at body temperature (37°). (4) Preparation using phosphorated suet B.P.C. and phosphorus with liquorice and glucose. B.P. Formula and Various Modifications.—The authors tried two modifications of the British Pharmacopæia formula—one made without dried sodium sulphate, resulting in a slightly harder and more easily wounded

formula—one made without dried sodium supplace, resulting in a slightly harder and more easily rounded mass, which, however, melted in the hands; the other with altered quantities of the B.P. ingredients, giving a softer pill than the official one. Suet was then suggested as a suitable fat, as it melts at a higher temperature than wool fat and is capable of digestion. Sevum Phosphoratum, B.P.C., which contains 10 per cent. of phosphorus, was used in the next two experiments, yielding soft masses, easily hauded, rolled out and rounded. From these experiments it appeared that suet alone is too soft for a base. Experiments were next carried out to find a suitable hardening agent. White wax alone yielded a mass which crumbled. This was rectified by the addition of wool lat. Iwo formulas (6 and 7) on these lines were tried, yielding results as follows:—(6) Easily rolled, but liable to become hollow; sticky to cut. (7) Rounded easily; readily handled, rolled out, cut, and rounded with ease. Since stearin is fairly hard, it was thought that a simpler base might have recovered from it than from suct. Formulas 8, 9 and rectified by the addition of wool fat. Two formulas be prepared from it than from suet. Formulas 8, 9 and 10 contain varying proportions of stearin with some of the ingredients of the B.P. pill, oil of theobroma being omitted in each case. The authors' observations are:—

(8) Easily rolled and rounded, sticky to cut. (9) Good firm pill, easily rolled and handled. (10) Softer than No. 9. It was evident that it would be an advantage to have a base which could be prepared without heating to have a base which could be prepared without heating the fat. Experiments were then made with this object in view. Formula 11 rolled out well, but was too soft to round. Formula 12 gave an excellent, firm mass, easily rolled, cut and rounded. This formula is:—Phosphorus, 1 gram; stearin, 40 grams; wool fat, 6 grams; sodium sulphate (exsicc.), 45 grams; kaolin, 8 grams; carbon disulphide, 20 mils.

U.S.P. Formula.—It was found that the volume of chloroform required to dissolve the phosphorus in this

chloroform required to dissolve the phosphorus in this pill was so large as to be inconvenient. Carbon disulphide (1 mil) was used in place of the chloroform. The result was an elastic, spongy mass which rolled out and

rounded easily.

Disintegration Tests.—(a) At Room Temperature (15°).—For this purpose the varnish was removed from the surface of the pills by rolling them between the fingers. Two pills from each batch were placed in a test-tube with 10 mils of water. The time required for disintegration ranged from three days in the case of the B.P. product to two hours in the case of the U.S.P. pill. (The authors give this and their other results in tabular form.) These experiments showed that pills made with a stearin base disintegrated more results and more completely than those made with such readily and more completely than those made with suet readily and more completely than those made with suet bases of the same hardness. A large percentage of dried sodium sulphate increases disintegration, particularly when suet is present. (b) At Body Temperature (37°).— Batches 1, 2, 7, 9 and 12 were tried. The first two disintegrated in from three to five minutes; the remainder were unchanged in five hours. These experiments do not furnish satisfactory evidence as to what will take place in the body, as there is no digestive action on the fats. The B.P. pill, owing to its similarity to a suppository mass, melts at body temperature. This. to a suppository mass, melts at body temperature. This, however, is not due to the action of the sodium sulphate. because when this is omitted the pill is still disintegrated in from three to five minutes at a temperature of 37°.

Final Experiments.—Final experiments were made in an attempt to find a formula containing sufficient fat to keep the phosphorus in solution without producing to keep the phosphorus in solution without producing an unmanageable pill. Batch 14 was not very successful, but formula 15 yielded an excellent mass, with very little fuming, easily rolled, cut and rounded. This formula is:—Phosphorated suet, 10 grams; powdered liquorice, 56 grams; glucose, 34 grams; carbon disultil.

phide, 20 mils.

CONCLUSIONS

(1) B.P. formula is too soft for general practice.
(2) Sodium sulphate (exsicc.) has apparently little advantageous action upon the distintegration of the B.P. pill, which melts at the body temperature in five minutes.

(3) Formulas with stearin, suet and wax, used in place of cocoa butter, gave a more manageable mass, but the pills failed to disintegrate in one day.

(4) Formula number 15 is satisfactory in—(a) manipulation; (b) keeping properties, i.e., it does not fume; (c) disintegration—at body temperature in one hour.

It seems to us desirable that the administration of

free phosphorus in pill form should be discontinued and replaced by some other method, e.g., oleum phosphoratum administered in capsules.

There was no discussion, but Captain HILL praised the paper as a typical piece of research which might be carried on behind almost any dispensing counter.

The next paper was :-

A Note on Oleated Mercury

By F. J. Dyer, Ph.C., and Kathleen M. Metcalfe, Ph.C.

[ABSTRACT]

THE authors describe a series of experiments undertaken with a view to obtaining oleated mercury in the form of a uniform product, not exhibiting the variations to be found in commercial samples. As a result of their investigations of the various methods in use, and also of a number of modifications of these processes, they suggest the following revised monograph for the B.P. Codex:-

 OLEATED MERCURY

 Mercuric oxide 20 grams

 Alcohol (90 per cent.) 5 ,,

 Oleic acid 80 ,,

Triturate the mercuric oxide with the alcohol and while moist add the oleic acid. Heat on a water-bath

for twenty minutes, stirring occasionally.

Characters and Tests.—Translucent or semi-transparent unctuous substance of lemon yellow colour. Should not darken or become opaque on keeping. When 1 gram is shaken with 20 c.c. of ether, a translucent solution is obtained, from which no yellow or grey particles separate on standing (absence of mercuric oxide and metallic mercury).

There was no discussion. The chairman, in thanking the authors of this and the other papers presented, remarked that if the contention of the paper was correct, it would improve a preparation liable to vary in

appearance.

Delegates' Meetings

The delegates from the branches of the Pharmaceutical Society met on Tuesday afternoon and Wednesday morning. The papers presented were: "An Historical Survey of the Charters and Acts of Parliament Governing the Society's Activities Leading up to the Present-day Position," by Mr. F. P. Sargeant, and "The Dangerous Drugs Acts and Regu'ations, including the Labelling of Poisons Order," by Mr. John Keall. The proceedings were private, but an official report is to be supplied.

Science Session-Thursday Morning

The following are the papers for presentation on Thursday morning, July 30:—

Note on Morphine Hydrate By D. B. Dott, F.I.C.

[ABSTRACT]

AT one time it was not unusual to give directions to dry in a water-bath or at 100° C., as if they meant the same thing, and it was scarcely realised that the interior temperature of a water-bath varies greatly according to its construction. The question was raised whether the foreign pharmacopeias which require opium preparations to yield a weighed percentage of morphine, dried at 100°, mean the hydrated or anhydrous morphine. If the preface to a pharmacopœia indicated that drying at 100° meant drying in a water-bath, there might have been an element of doubt; but in the absence of any such indication the drying ought to be at 100°, or at a temperature which effects the same result. The Japanese Pharmacopœia recognises the form of bath in which stem is blown into the supportant areas. in which steam is blown into the surrounding space. The temperature of the interior just above the tray was found to be 98.5° (corr.). In such a bath 0.5 gram of morphine in powder is rendered anhydrous in two hours or a little over. On the other hand, at a temperature of 90°, morphine hydrate loses water so very slowly that drying at that temperature is impracticable. In the absence of a water-bath giving about 98°, the drying should be done in an air-bath at 100°-110°. When minute crystals of morphine hydrate are placed in the bath to be dried, some of the substance is liable to be projected over the edges of the watch-glass, so that the tray must be covered with paper or a large glass plate to collect the scattered morphine. This trouble is to collect the scattered morphine. This trouble is avoided by using a weighing-bottle, but the drying is thereby retarded. This tendency to fly about is not generally exhibited by hydrates on drying under 100°. Codeine, which also loses its water under 100°, shows no such tendency. Morphine hydrate, even when dried in a desiccator over sulphuric acid for several hours, or for four hours at 35°, contains more water than the 5.94 per cent. required for the molecule; it may be 6.43. Whether the excess be simply interstitial or hygroscopic moisture, it is retained with unusual avidity, and, in any case, it has as a practical proposition to be taken into account.

The Colorimetric Estimation of Benzoic Acid in Cordials, etc.*

BY A. J. JONES, PH.C., A.I.C.

[ABSTRACT]

The author had occasion to examine a number of cordials for their content of benzoic acid, but at the outset no published method was found that lent itself satisfactorily to quantitative routine work. Dealing with material such as cordials and so-called soft drinks, and where the maximum content is limited to 5 grains of the preservative to the pint of liquid, it is obviously desirable to employ a colorimetric method of assay, if at all possible to do so. As a result of a series of investigations, the author found that the following procedure gave the most satisfactory results:-Ten c.c. of the beverage are taken in a separator, mixed with 5 c.c. of 10 per cent. sulphuric acid, and extracted with 20 c.c. of a mixture of equal parts of petroleum ether and ethyl ether, repeating with 10 c.c. The ethereal extracts are mixed and extracted with 5 c.c. of water rlus 0.3 c.c of 20 per cent. caustic soda solution, repeating with 5 c.c. of water alone. A speck of litmus paper is added to the separator, so that one may see if the alkali is in excess, although with lemon and lime preparations that have been in contact with the peel, the natural colouring is an indicator in itself, being extracted from the ether by the alkali. Of course, the usual rinses are made, using just a small quantity of water each time. Evaporate the alkaline extract and rinsings in a small basin on the water bath and take to dryncos. Add to the residue 5 c.c. of the nitrating acid (a mixture of 1 vol. HNO₃ sp. gr. 1.42 with 9 vols. H₂SO₄ sp. gr. 1.84), heat on the water-bath, and see that the residue is taken up completely. Transfer to a testtube measuring $5 \times \frac{7}{8}$ in., well draining the basin; rinse the basin with another 2 c.c. of the acid and again with 1 c.c. Fit the tube in a clamp and suspend a thermometer, by means of another clamp, so that the bulb is nicely covered by the acid. Use a free flame, and raise the temperature quickly to 155° C., and maintain the temperature between 155° and 160° C. for three minutes exactly. Allow the tube to cool down to 100° C., then set in cold water. After complete cooling, add 20 c.c. of distilled water and cool again. Transfer to a separator, and extract with 15 c.c. and 10 c.c. of pure ether. Extract the ether with 8 c.c. of water, plus 2 c.c. of ammonia (sp. gr. 0.880), followed by two more extractions, each with 5 c.c. of water only. Run the ammoniacal extracts into a tube, add 13 c.c. of strong ammonia (a fair excess of ammonia being necessary for full development of the colour) and 1 gram of hydroxylamine hydrochloride: the solution will be about 30 c.c., including the rinsings. Raise the temperature to 350-40° C., when a fine red colour develops if benzoic acid is present. Let stand twenty minutes, then adjust the volume to 50 c.c. This can be matched against 5.7 milligrams of benzoic acid, taken as solution of benzoate of soda, evaporated to dryness and nitrated, and the above process followed. This will represent 5 grains to the pint when operating on 10 c.c. of the beverage. The ammoniacal extract of the nitrated acid, separating from the the blank to a moderately deep shade of yellow in the test. This is apparently due to extractives from the juice or cordial other than benzoic acid, but no disturbing effect has been experienced from this source. By this test one can distinguish quite readily differences of 1 milligram, but the differentiation in the intensity of colour is not strictly proportional. Objection can be raised that this test is not specific, in that it simply discovers any aromatic body that will split up and nitrate Objection can be in this particular manner; thus, saccharin will react, but it does not give anything like the intensity that results from benzoic acid. On the other hand, at the temperature employed, salicylic acid is negative. But the object of the text is to check sampler arguing a simple standard of the test is to check samples against a simple standard -namely, that only one preservative shall be present in a beverage.

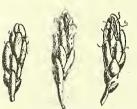
^{*} Contribution from the laboratory of Evans Sons Lescher and Webb, Ltd., Liverpool.

True and False Santonicas *

By T. E. Wallis, B.Sc., F.I.C., Pir.C., and Ellinor J. Mowat, Ph.C.

[ABSTRACT]

From time to time there appear upon the market samples of santonica, which closely resemble the genuine drug in external appearance, but which contain no santonin. It has been customary to examine commercial samples by making an assay of the amount of santonin which can be extracted by suitable solvents; in this way the genuine specimens are sorted out. The assay process is somewhat tedious, and it seemed desirable to search for some characters which may be depended upon for the identification of the drug by an examination of its structural details. The present research was undertaken with a view to formulating the diagnostic characters of genuine santonica—an end which could only be gained



GENUINE COMMERCIAL SANTONICA. flower-heads. x 8.

by a careful comparative examination of a large
number of those
closely similar
species of Artemisia.
The work has enabled the authors to
establish definitely
the botanical source
of genuine santonica,
and at the same
time to clear away
many uncertainties

connected with the synonymy of these plants. True santonica or wormseed of commerce is referred to different sources by the various Pharmacopæias; it is therefore apparent that some confusion exists as to the name of the plant which yields santonica.

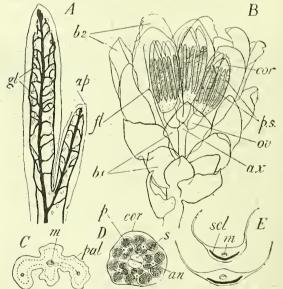
Whole

Flower-heads.—The dried flower-heads are narrowly ovoid in shape, measuring from 1.5 to 4 mm. in length and from 0.75 to 1.5 mm. in width, the most common dimensions being about 3 mm. by 1 mm. In transverse section the flower-heads are circular. Externally they appear nearly glabrous and shining and show the overlapping edges of the keeled and imbricated bracts. The number of bracts varies from 14 to 20, with an average of 16. The flower-heads have a greenish-brown colour, and admixed with them one always finds a few pieces of the leaves and stalks. When the flower-heads were rendered transparent, one could observe the bracts attached to the central axis with a conical end, upon which were situated from 2 to 5 flowers in various stages of development, but none of them fully expanded. The flowers have no pappus, and the conical end of the axis bears no paleæ.

Bracts.—All the bracts are involucral, and overlap one another from below upwards; the outer lower ones are smaller and broadly ovate in outline, while the upper and inner ones are longer and narrower, varying from oblong to lanceolate in shape. The size varies from 0.5 mm, wide and 0.75 mm, long for the smaller broadly ovate bracts to 0.88 mm, wide and 2.77 mm, long for the larger oblong-lanceolate bracts. The lowermost, smaller broats have a thick central region inclosing the midrib, and become gradually thinner towards the margins and apex; they have no scarious marginal portion. The intermediate and uppermost bracts have a thick, narrowly lanceolate central region, through which the midrib runs, surrounded by a wide scarious margin. The outermost portion of this margin is one cell thick and the inner part two cells thick. The scarious margin is quite colourless, while the thick central region contains chlorophyll. Upon the outer (i.e., lower) surface of the bracts numerous glandular hairs are found clustered along the line separating the central region from the scarious margin; amongst the glandular hairs there are a few very long cottony, T-shaped, protective hairs. Each glandular hair consists of three or four tiers of two cells each, which gradually increase in size from the point of attachment upwards; the two upper

most cells secrete an oily substance which collects under the cuticle and raises it as a delicate bladdery top to the hair. The entire glandular hairs are from 50 μ to 60 μ high, and, at the upper end, 62 μ to 75 μ wide and 25 μ to 40 μ broad. The cottony hairs are up to 1.5 mm, long at least, and are from 5 μ to 10 μ wide; they are fairly uniform in width throughout their length, the tapering occurring in the last 100 μ of the hair, which has a pointed end. The membranous margin consists of a parenchyma composed of narrow elongated cells (75 μ to 12.5 μ wide and 25 μ to 108 μ long), which are never prolonged into hairs either at the apex or at the sides of the bracts. Each bract has a well-marked midrib, which shows lateral branches even in the smallest bracts. The lateral branches are often somewhat contorted, leaving the midrib at right angles and turning suddenly towards the apex on reaching the limit of the central thicker portion of the bract. The branches anastomose more or less freely, some anastomosis being present in almost all the bracts examined. A few of the uppermost bracts have a midrib which is simple throughout the lower two-thirds of its length, the apical portion being slightly branched and occasionally showing no anastomosis. None of the specimens examined by the authors of the genuine drug possessed bracts having the simple unbranched midrib figured and described by Tschirch in his "Pharmakognosie," nor did their venation resemble the slightly branched midrib illustrated by Tschirch and Oesterle in their Atlas (Tschirch and Oesterle, 1900).

Axis and Flowers.—The axis of the flower-head is stalk-like, and has a length equal to rather less than half the length of the flower-head. It is cylindrical—about 0.15 to 0.20 mm. in diameter—and terminates in a wider conical end (about 0.33 mm. in diameter at the base and 0.3 mm. high), which bears 2 to 5 flowers in various stages of development. There are no bracts subtending the flowers. All the flowers are tubular and hermaphrodite and have no pappus; the largest measured

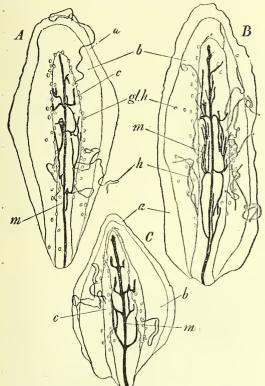


Genuine Commercial Santonica... A. Pinnule from a toliage leaf, showing the venation and the absence of hairs x 15; ap., apiculus; gl., gland. B. entire flowerhead, cleared by boiling in solution of chloral hydrate, x 15. ax, conical end of the central axis: b1, outer bract; b2, inner bract; cor., corolla of floret; fl., floret; ov., ovary; p.s., pollen sacs. C. Transverse section of the foliage leaf, x 30; m., midrib; pal., palisade tissne. D. Transverse section of a floret, x 30; an., arther; cor., corolla; p., pollen; s. stigma. E. Transverse sections of two bracts, x 30; m., midrib; scl., sclerenchyma.

had a length of 2 mm. and a width of 0.7 mm. The connectives of the syngenesious anthers project beyond the anther lobes in the form of a membranous triangular tip, which is from one quarter to one-third the length of the anther. The anther lobes themselves are ex-

^{*} Communication from the Pharmacy Research Laboratory of the Pharmacentical Society.

tended downwards on either side of the filament in a similar way. The cells of the connectives and of their triangular prolongations, as also of the downward extensions of the anther lobes, contain numerous minute cluster crystals of calcium oxalate. The corolla has numerous glandular hairs upon its outer surface, especially upon the free tips of the petals and at the base of the corolla tube; these glands closely resemble in size and form those of the involucral bracts. The apices of the corolla lobes are only slightly papillose. The anthers are filled with pollen grains, which are circular



GENUINE COMMERCIAL SANTONIC. A, Bract from the middle of a flower-head. B, One of the upper or inner bracts. C, An outer bract. All x 30. q, outer part of the margin of the bract, one cell thick; b, intermediate part of the bract, mostly about two cells thick; c, central thicker part of the bract; gl.h., glandular hair; h, cottony T-shaped hair; m., midrib.

in outline, and have three germ pores; they have a diameter of 17μ to 18μ . The stigma is bifid with the two parts closed against one another and supported on a short filiform style, which had not begun to elongate in any of the flowers examined. The ovary is obovoid in shape, and contains a single basally attached ovule.

Leaves.—In every sample of commercial santonica there are present numerous portions of leaves, which come from the upper branches of the plant and are mostly bracts from the floral axis. The leaves or pieces of leaves vary in length from 2 to 11 mm. and have a width of 0.75 mm. to 1.25 mm. Most of the fragments are linear, a few being slightly oblanceolate-linear. Viewed with a pocket-lens, they show a wide flat ridge over the midrib on the upper surface and, on the lower surface, a somewhat narrower similar ridge and slightly recurved and thickened margins, which together produce the appearance of three parallel lines. They are all quite glabrous. Glands and stomata occur on both upper and lower surfaces, the glands being restricted mainly to two lines, one on each side of the midrib. The leaf has palisade parenchyma all round it beneath the epidermis.

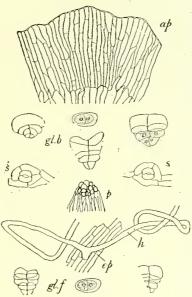
ARTEMISIA MARITIMA, VAR. α-STECHMANNIANA, BESSER

The plant named in the British Pharmacopæia, 1914, as the source of santonin is A. maritima, var. a-Stech-

manniana, Besser, and the drug is referred to the same plant in the British Pharmaceutical Codex, 1923, and in most British textbooks. The authors were enabled to examine in the Herbarium at the Royal Botanic Gardens, Kew, material obtained from Besser himself, which all differed markedly in structure from the commercial article. The bracts are rather more lanceolate in shape, and the long cottony hairs attached to the outer surface of central thicker portion of the bract are much more numerous than in the case of commercial santonica. The margin also shows a very marked difference in that all the smaller bracts have some of the marginal cells extended in the form of uniseriate hairs at the apex and upper half of the bract, though the larger bracts do not always show these characteristic marginal hairs. The midribs are very little branched; they are accompanied by much sclerenchyma, and the branches show no anastomoses. From their observations it is evident that the commercial drug is not derived from A. maritima, var. a-Stechmanniana, Besser, which is a species entirely distinct from that yielding commercial santonica.

ARTEMISIA LERCHEANA, KAREL. ET KIRIL.

Artemisia pauciflora, Weber, is given by Bentley and Trimen (1880) as the source of santonica; the same plant, A. pauciflora, is named by the U.S.P. as yielding the commercial drug. The bracts are distinguished from those of the commercial santonica by the presence of numerous curled hairs on the outer surface along the border of the thicker central region, and further by the branching of the midrib, which is very slight in the larger bracts, while in the smaller ones, where branches are fairly frequent,



Genuine Commercial Santonica. Details A. maritama, var. of the bracts and florets, all x 200. ap., a Stechmanniana, apex of an involucral bract; ep., epidermis of a bract; gl.b., gland from a bract; gl.b., gland from a floret; h, T-shaped cotteny hair; p. apex of a corolla lobe; s, stoma from a bract.

there is very rarely any anastomosis between them; the smaller bracts also show the presence of apical marginal hairs similar to those seen in Artemisiamaritima, a-Stechmanvar. niana. The authors found that Arte-Lercheama. misiaKarel. et Kiril, differs from A. maritima, var. a-Stech-manniana, in the smaller size, and slightly larger num-ber of the involu-cral bracts and in the distinctly smaller hairiness both of bracts and leaves. The authors are of the opinion that A. Lercheana (A. pauciflora, Weber) is a species distinct from both
Details A. maritama, var.
0. ap., c Stechmanniana,

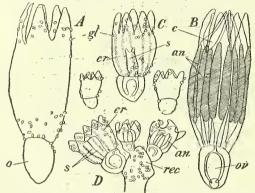
ARTEMISIA CINA (BERG) WILLKOMM

Artemisia Cina, Berg. or more correctly, A. Cina (Berg) Willkomm, is cited by Tschirch and by a large number of the Continental Pharmacopeias as the plant yielding commercial santonica. Three original specimens were all examined in the same way as those already described, and they all exhibited the same characters and agreed in all points with the commercial article. The authors, therefore, conclude that A. Cina (Berg) Willkomm is the true source of genuine com-

mercial santonica. They have also formed the opinion that Artemisia maritima, var. a-Stechmanniana (Weber) and A. Lercheana (Karel. et Kiril.), which latter name is synonymous with A. pauciflora and A. maritima var. pauciflora, Ledebour, are species distinct from one another and also from A. Cina (Berg) Willkomm.

COMMERCIAL SANTONICAS DEVOID OF SANTONIN

Six specimens offered upon the market as santonica between the years 1919 and 1923 were examined chemically by Mr. P. A. W. Self, and a seventh specimen, examined in 1920 by Professor H. G. Greenish, all of which were found to contain no santonin. The authors were unable to obtain definite information as to the country of origin of any of these specimens. Although they show the same general characteristics as the *Artemisias* already described, these spurious samples differ



Genuine Commercial Santonica. Details of florets, all x 30. A, An entire floret, showing the distribution of the glands; gli, on the outer surface; o., ovary. B, A floret as seen when cleared with solution of chloral hydrate; an, anther; c., corolla; ov., ovule. C, Younger florets; cr.; small crystals of calcium oxalate in the connectives of the anthers; s., style and stigma. D, Cluster of very young florets upon the conical receptacle. an., anthers; cr., calcium oxalate crystals of the connectives; s., style and stigma.

markedly from all of them in certain particulars. The bracts were rather more ovate in shape than those of the genuine samples, being broader in proportion to their length. The midribs were freely branched (pinnate) in all except the largest bracts, but the branches very rarely anastomose. A third, and this was perhaps the most important, feature of these bracts was the presence of important, feature of these bracts was the presence of marginal hairs, especially at the apex. The hairs are seldom found whole, and consist of two or three basal cells; they are present in large numbers upon the smaller bracts, and become less numerous upon the larger more lanceolate inner bracts, upon some of which they cannot be observed at all. The foliage leaves, intermixed with the flower-heads, are more linear in shape and have a much layery colourless engaged. shape and have a much larger, colourless apiculus than the commercial leaves; they also have a considerable number of cottony hairs, whereas the corresponding leaves of commercial santonica are glabrous. It was not possible to find any plant whose flower-heads and leaves agreed with this santoninless variety.

Indian Specimens

Five specimens of santonica obtained from India were found in the Museum of the Pharmaceutical Society of Great Britain; these all resembled one another closely, and were evidently from the same botanical source. These five similar specimens consisted of flower-heads having the same general characters as the varieties described above. The foliage leaves are composed usually of from three to five pinnules, which are remarkable for their obovate shape and obtuse apex; the venation is markedly reticulate. The surface and margin of the leaves are sparsely clothed with fine cottony hairs in moderate numbers. One of these specimens was examined for santonin by the sublimation method, and a negative result was obtained. These Indian specimens can, therefore, be casily distinguished from the gennine

article by the marginal hairs upon the bracts of the flower-heads and by the remarkable obovate leaflets.

DUTCH SPECIMEN

Through the kindness of Professor van der Wielen. Amsterdam, who sent herbarium specimens of his plant to Professor Greenish, the authors were enabled to examine a species of Artemisia which is being cultivated in Holland, and which yields from the leaves and flower-heads about 1.3 per cent. of santonin, as determined by E. I. van Italie. This plant had been referred to Artemisia Cina, Berg, by the Bureau of Plant Industry in Washington, who sent the seed to Holland, having received it from California. On examination, this plant was found to be markedly different from Artemisia Cina (Berg) Wilkomm; it evidently belongs to the Seriphidium division of the genus Artemisia, but amongst the specimens examined there was none which resembled this plant from California (via Holland). The bracts of the flowerheads are, on the average, smaller than those of A. Cina, and are more delicately constructed. The central thicker region of the bract is comparatively narrow, being about one-eighth the width of the corresponding region in A. Cina. The apices of the bracts differ from all others examined in having two or three small crenations at the examined in having two or three small cremations at the extremity, but apical hairs are never present. The flowers also are quite characteristic. The apex of each triangular oorolla lobe is covered by numerous short papillæ, from among which arises a single unicellular hair, whose length is about equal to the length of the lobe. It is therefore evident that this Dutch specimen is a species quite distinct from any of the Artemisias described in this paper, and it does not agree with any of the numerous species examined.

SUMMARY

1. This examination of a large number of species of Artemisia belonging to the section Scriphidium has made it possible to formulate the following characters by which the flower-heads of genuine santonica of commerce can be identified with certainty :-

(a) Foliage Leaves.—These can always be picked out from a sample of sautonica and are linear-lanceolate with a rounded apex and an apiculus. The leaves have a midrib with numerous pinnately arranged branches connecting it with the two marginal veins, which run parallel

meeting it with the two marginal veins, which run parallel with the margin at about one-third the distance between it and the midrib. There is a complete absence of long hairs, but numerous sessile glands are present.

(b) Bracts of the Flower-heads.—The bracts vary in number from 14 to 20, most usually 16. The midrib branches freely and the veinlets are contorted and frequently anastomose. The number of cottony T-shaped nairs is small, and apical marginal hairs are always absent

(c) THE FLOWERS.—The apices of the corolla lobes are 2. The botanical source of true wormseed of commerce is Artemisia Cina (Berg), Willkomm.

3. Artemisia maritima, var. a Stechmanniana, Besser,

given in the British Pharmacopæia and cited by Flückiger and Hanbury as the source of santonica, is not the same plant as A. Cina (Berg), Wilkomm, and its flower-heads have not the same structure as those of genuine commercial santonica.

4. Artemisia pauciflora, Weber (A. Lercheana, Karel, et Kiril.), given by the United States Pharmacopæia and described by Bentley and Trimen as the botanical source of santonica, is a distinct plant whose flowerheads differ from those of both A. Cina, Berg. and

from A. maritima, var. a Stechmanniana, Besser.

5. Commercial specimens of santonica devoid of santonin can all be distinguished from the true drug, more especially by the hairiness of the leaves and the presence of apical marginal hairs upon the bracts of the flowerheads.

6. Several Indian specimens were examined in the hope that they might prove identical with the samples devoid of santonin. All these specimens were evidently from the same species of Artemisia, but did not resemble the more recently imported spurious santonicas. They are especially characterised by their remarkable oboyate leaflets.

7. The plant under cultivation at Amsterdam in Holland, which has been referred to A. Cina, Berg, by the Bureau of Plant Industry, Washington, U.S.A., is a distinct species having very well-marked characters, separating it entirely from all the other species examined.

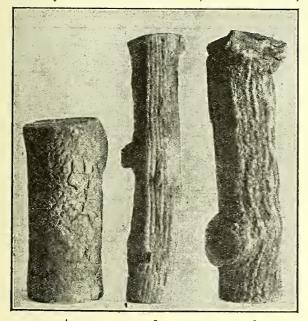
In conclusion, the authors expressed their thanks to Dr. A. B. Rendle and Mr. Good, of the British Museum, and Mr. Hutchinson, of the Kew Herbarium, for the valuable assistance they gave them in searching the collections under their charge.

The Structure of Coscinium *

By G. R. A. SHORT, PH.C.

[ABSTRACT]

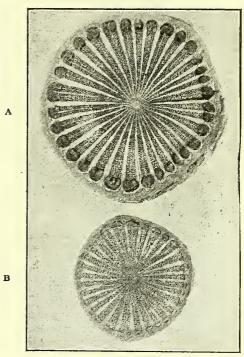
A short time ago Professor Greenish received from one of the wholesale houses a specimen of a drug which had been imported as the stem of Berberis aristata, De Candolle. On examination of the sample it was found to possess the characters of coscinium, a drug which is the subject of a monograph in the Indian and Colonial Addendum to the British Pharmacopæia (1900). Coscinium stem is also briefly described in the Pharmacopæia of India (1868) and by Dymock in his Materia Medica of Western India, but a histological investigation does not appear to have been undertaken by previous workers. The introduction of coscinium into this country, as an article of commerce, from Ceylon, was first noted by Hanbury (1850-1851), who described it as having been imported under the name of calumba wood, and suggested that it might be the woody stems of Menispermum fenestratum, Gærtner (1788), now known as Coscinium—having been set up by Colebrooke in 1822. That this drug had been confused with berberis is noted by Dymock (1884), who says: "I have not met with any account of it (coscinium) in native works;



Coscinium fenestratum, Coleb.—Typical commercial specimens of coscinium stem. All x 2. A. Large stem showing fairly smooth external surface, with numerous small fissures. B and C. Smaller stems showing the characteristic longitudinal wrinkles and the projecting bases of side branches.

but there is reason to believe that it has sometimes been confounded with darhalad, the stem of barberry." Commercial coscinium occurs in fairly straight pieces varying in diameter from about 1 to 8 cm., and is covered with a yellowish-grey cork. The surface availly exhibits parallel, long, occasionally spirally twisted wrinkles, though sometimes it is nearly smooth;

older pieces are often much furrowed; it bears the slightly projecting scars of lateral branches. Internally the stem is of a bright greenish-yellow colour when freshly cut; the colour gradually changes on exposure to the air to a uniform cinnamon-brown. The transverse section shows a narrow cortex, within which is a complete crenatering of sclerenchyma, the points of the crenations projecting into the medullary rays. It is to this strongly-developed crenated sclerenchymatous ring that the longitudinal wrinkles, visible on the exterior of



Coscinium fenestratum, Coleb.—A. Transverse section of the stem A. B. Transverse section of the stem B. Both natural size.

the stem, are due. The phloem is developed inside this ring in the form of semi-lunar masses, each mass being enclosed on the curved side by one of the sclerenchymatous crenations and on the flat side by the cambium. The tissue at the cambium line and also just within the sclerenchyma is frequently broken down owing to shrinkage during the drying of the stem, and lacunæ often appear in these positions in the dry drug. The wood is markedly radiate, and contains numerous large vessels embedded in a denser ground tissue, giving it a porous appearance. The wood shows no annual rings, and is traversed by dense primary medullary rays, which vary in number from about 25 to 40; in addition to these, secondary rays are present in stems of about 3 cm. diameter and upwards. In the centre is a small lignified pith varying in diameter from 2.0 to 4.0 mm., and usually of a slightly darker colour than the surrounding tissues. The author then described in detail the features of transverse sections of stems in various stages of development, from 2 mm. to 21 mm. in diameter, supplied to Professor Greenish for the purpose of this research by Mr. T. Petch, of the Department of Agriculture, Peradeniya, Ceylon.

The Bark.—The cork consists of tabular cells varying in length and breadth from 22 to 50μ and having a height of from 12 to 18μ . The walls are very thin and slightly wavy in outline, as seen in surface view; they also possess numerous very fine pits. The cortex is formed of round-celled parenchyma with small intercellular spaces, the cells varying in dimensions from 18 to 55μ in any direction. In the cortex are found occasional sclerenchymatous cells or groups of such cells which are seen in surface view to have walls which are perforated by numerous fine pits; they vary in size from about 25

^{*}Communication from the Pharmacy Research Laboratory of the Pharmaceutical Society.

The stone cells from the indentations of the crenate ring which surrounds the vascular cylinder may be readily distinguished by the fact that many of them are radially elongated, having a length of from 100 to 140μ , the remainder being similar in appearance to those of the cortex. The pericyclic fibres vary in length from about 0.6 to 3.0 mm., and in width at the middle point from 12 to 15µ. They are straight with tapering ends, and the lumen appears as a fine central line. Occasional strands of sieve tissue are to be found in the disintegrated material; these are very transparent, and are mostly

composed of thin-walled collapsed cells.

The Wood.—The vessels are large, some having a diameter as great as 0.4 mm., and composed of separate units, each frequently 0.5 mm. in length. They bear numerous pits arranged in somewhat irregular longitudinal rows, and frequently contain tyloses. The wood fibres are long, tapering, and bear numerous narrow pits, spirally arranged; they are tortuous in outline, owing to the peculiar way in which they interlace with one another. The wood parenchyma is formed of longitudinally elongated cells, with pitted walls; they are somewhat irregular in outline, many having small lateral projections. The plates of medullary ray cells usually present their radial surfaces, in which view the cells appear tabular in shape; they are strongly lignified and are marked with circular and elliptical pits. Most of the medullary rays extend unbroken throughout the length of the internode, and vary in width from about 15 to 18 cells.

The Pith.—The cells of the pith are of two main types, those from the centre of the stem being rounded or ovoid in shape, while the portion of the pith nearest almost square ends. These cells are all strongly lignified and bear numerous pits. They frequently reach a length of 275μ and width of 110μ in the central part, while in the outer region they average 60μ in width and reach a length of about 180μ . After describing an examination of the stem of *Coscinium Wallichianum*, the author sum-

marised his investigations as follows :-

CONCLUSIONS

1. Several commercial samples of Berberis aristata stem proved upon examination to consist entirely of coscinium stem.

2. Externally, coscinium stem is easily distinguished by

the following features :-

(a) The yellowish-grey-oork, which is frequently furrowed or wrinkled.

(b) The bright greenish-yellow colour of the transverse surface, when freshly cut. (c) The crenate ring of sclerenchyma and the semi-

lunar masses of phloem.

(d) The markedly radiate wood, with large vessels and the absence of annual rings

3. Very young stems can be quickly recognised by the epidermal hairs.

- 4. Commercial specimens always have a well-developed cork, so that the hairs are no longer available. The other features by which coscinium can be distinguished from berberis are:—
 (a) The light porous wood, which is free from annual
- rings.

(b) The wide medullary rays.

(c) The lacunæ produced by shrinkage of the phloem.

5. The stem of Coscinium Wallichianum is distinguished by the hairs of the epidermis and the frequent occurrence of sclerenchyma in the pith.

6. To distinguish genuine commercial Coscinium fene-stratum from Coscinium Wallichianum it is necessary to rely principally upon the structure of the pith, which in fenestratum shows an almost complete absence of sclerenchyma.

Mr. G. R. A. Short expressed his thanks to Professor H. G. Greenish and Mr. T. E. Wallis for their invaluable

help in connection with this research.

The Testing of Insurance Dispensing

By G. D. Elsdon, B.Sc., F.I.C.

[ABSTRACT]

A paper by Mr. F. A. Anderson and the author was read before the 1920 meeting of the Conference [C. & D.,

II, 1920, p. 1041; the title of the paper was similar to the present one]. With the possible advent of a national scheme for the examination of dispensed medicines, now is a convenient time to review the past and to criticise present methods and suggestions. The writer feels that as a representative of the Salford Insurance and Health Committees he is in a somewhat favoured position in this matter, as it is entirely to the pioneering work of these two Committees, together with the clerk of the former (Mr. F. A. Anderson), that the present demand for a

national scheme is due.

It may be restated that the Salford scheme came into active operation in December 1919, more than a year before steps were taken elsewhere. It may be of interest to state further that, by the time activity in the Press had become noticeable, the house of the Salford pharmacists had been swept and garnished, and this with the minimum of publicity—in fact, during the six years that the scheme has been in operation, only four prose-cutions have been instituted. From the time the scheme became operative in Salford to the present, 309 mixtures dispensed under the Insurance Act have been examined, but this figure does not, of course, include drugs other than dispensed medicines, a considerable number of which have been examined in addition. The general results obtained from these examinations are set out in the following table :-

Year	Total number of samples	Number adulterated	Per cent. adulteration
1919 1920 1921 1922 1923 1924	21 31 51 55 56 76 19*	3 3 2 3 6 2 0	14.3 9.7 3.9 5.4 10.7† 2.6 0.0
Total	309	. 19	6.1

* First two months.

† Less than 2 per cent. due to errors of pharmacists.

It should be explained that in recent years serious adulteration has been almost entirely absent. The high figure for 1923 was due to the fact that there was a deficiency of cod-liver oil in cod-liver oil emulsion, in four cases the deficiency being due partly to the confusion which existed at that time between the B.P.C. emulsion and the emulsion usually ordered by the Corporation clinics and partly to wholesale supplies being unsatisfactory; during this year only one serious case was discovered, which reduces the adulteration due to pharmacists themselves to less than two per cent. The 309 samples have been obtained on 43 different high. 309 samples have been obtained on 43 different kinds of prescriptions, slight differences in quantities of material and doses of mixture being disregarded in the calcula-tion of this number. The samples have been divided between 54 pharmacists representing 81 different pharmacies—a pharmacy being considered as "different" when it changes hands. Of these 309 samples, 19 have been returned as unsatisfactory for some reason, giving a percentage of unsatisfactory samples of 6.1. Of these 19 samples, however, careless dispensing only occurred in 12 cases, giving a percentage of 2.9. In three cases the mixture had been dispensed in 12-oz, bottles in place of the 10-oz, bottles ordered, which accounted for the bulk of the deficiency in each case; four were due to confusion as already stated above, while one was due to impure material supplied by a wholesale house.

It may be desirable to draw the attention of the Con-

ference to two important legal points which apparently need amending. A pharmacist is responsible for the purity of his drugs unless he obtains a written warranty that they are pure and satisfies the Court that they are sold in the same state as received. The person giving the warranty may then be prosecuted for false warranty; but in this case all that is necessary to avoid a conviction is that he proves to the satisfaction of the Court that when he gave the warranty he had reason to believe that the statements contained therein were true (1899 Act, Sec. 20). When this has been done, the public have no redress. A point of even greater interest to pharmacists is that drugs cannot be taken on delivery

as foods can (see Sec. 14, Act of 1899). Where, therefore, the wholesaler is the real offender it is only possible to prosecute him, in the absence of a warranty, by taking proceedings against the retailer in regard to the sale, and against the wholesaler for aiding and abetting.

Of the 309 dispensed materials, 225 have been liquids contained in better of manifest and the sale.

contained in bottles of nominal capacity of from 8 to 12 fluid ounces. The actual capacities have been measured in each case, with errors as shown in the following

table :-

Per	cent.	error	No. of samples	Per cont. of total
0.0-2.0 2.1-4.0 4.1-6.0 6.1-8.0			 92 84 28 23	40.8 37.4 12.4 10.2
8.1–10.0 10.1–12.0	••		 5	2.2 1.3

It is now possible, however, to obtain machine-made bottles having an accuracy of about 2 per cent. It is somewhat curious that, where a bottle has not the correct capacity, it is much more likely to have a lower than a higher capacity. Of the number mentioned above, while 142 contained less than the true amount, only 83

THE PROPOSED NATIONAL SCHEME

The scheme which has lately been proposed by the Ministry of Health is obviously based on that originally propounded by the two Salford Committees: there are several distinct differences, but in the opinion of the writer none of these is an improvement, while one or

two may even make the scheme unworkable.

The first unsatisfactory part of the scheme is the type of agent to be used. It is laid down that the division of the sample shall be carried out by the pharmacist, and that it may be (the italics are the writer's) in the sight of the agent. An arrangement more open to abuse it is impossible to imagine. If the division must be done by the pharmacist (a proceeding which would make him responsible in case of dispute arising concerning the division) it is obvious that this should be done in the sight of the agent who, of necessity, should be a trained man (how else can a possible improper division be checked?). The use of untrained assistants such as is contemplated by the scheme is unworkable. That the person actually presenting the script shall be a different one each time is obviously a necessity, but that the agent of the Committee responsible for the division of the sample should be an experienced officer is equally so.

One of the great difficulties under the Sale of Food and Drugs Acts is that a public analyst is allowed little, if any, latitude in the manner of making out his certificate, and this unsatisfactory state of affairs is apparently to be continued under this scheme. If the work of the analyst is to have its maximum efficiency he should be allowed a free hand in the wording of his certificate, and he should be asked to give his observations on the merits of the case, as well as on the deficiencies observed. Time and again in Saltord the authorities have been able to take advantage of observations made by their analyst (usually in favour of the pharmacist), for which under the present scheme no

provision has been made.

Under the proposed scheme the sample is divided into two parts: one of these is for transmission to the analyst under the scheme, while the other is to be sent to an analyst selected by, and at the discretion of, the pharmacist. The inadequacy of two parts only is at once seen when the question is asked as to what is to happen if these two analysts disagree. It is somewhat extraordinary that the method of division into three parts, which has been found so satisfactory during fifty years, should be entirely discarded.

The Salford arrangement has been for the pharmacist to initial the inspector's copy of the script so that no dispute might afterwards arise. This has now been discarded on the plea that the analyst will thereby know the name of the pharmacist, and yet he is to receive the bottle on which, presumably, will be the pharmacist's label. There are one or two other points

which, although possibly not so important, may give rise to similar difficulties in other places; as some of them have done in Salford. One point is that there is nowhere anything to make the giving of scripts for the purpose of testing dispensing obligatory on the part of the practitioners on the medical list. No time limit has been set within which a case must be considered. Experience of the working of the Sale of Food and Drugs Acts has shown that such a limit is desirable from many points of view. The constitution of the subcommittee which is to adjudicate on the analyst's reports, consisting as it does of an interested party and a non-scientific chairman, is open to a certain amount of objection.

The ideal scheme would, in the opinion of the writer, be set up by the use of the machinery which already exists under the Sale of Food and Drugs Acts for the question of sampling. Analysts should all work to reasonably efficient standards, which should be uniform for all areas. The analysts' reports should be unfettered, while the action to be taken thereon should be decided by the Insurance Committee, the present machinery thereof being used for such disciplinary action as may be necessary, prosecutions under the Sale of Food and Drugs Acts being discontinued during the useful working

of the scheme.

In conclusion, the writer desires to acknowledge the continued assistance which he has received from Mr. F. A. Anderson, the clerk to the Salford Insurance Committee.

The Vitamin Content of Cortex Limonis, B.P. Preliminary Note

By Stanley G. Willimott, Ph.D., B.Sc., A.I.C., and Frank Wokes, B.Sc., A.I.C., Ph.C.

[ABSTRACT]

Although lemons have been known from very early times, their use in medicine has arisen only recently A syrup of lemon juice was first imported into England from Italy somewhere about 1630. The value England from Italy somewhere about 1650. The value of lemon juice in preventing scurvy was thought to be due to its acidity, and when it was later found that the juice of the West Indian lime was more acid than that of the lemon, lime juice was gradually substituted. Thus lime juice has usurped the reputation of lemon juice as an antiscorbutic, although as a matter of fact lemon juice is more than twice as effective. Although the juice was thus the first part of the lemon to be used medicinally, the virtues in the peel were not altogether ignored, and it was slowly recognised that lemon neel contained and it was slowly recognised that lemon peel contained valuable principles. After describing in detail the botanical and microscopic characters of lemon peel, as well as its principal chemical constituents, the authors reviewed the work hitherto accomplished in investigating its vitamin content, and then proceeded to describe their own experiments. The experimental animals used in this investigation were albino rats of Wistar Institute origin. Bread and milk was the standard diet. A small amount of chipped vegetables (cabbage, lettuce, etc.) was given daily, and once a week the yolk of a boiled egg. Indian corn was provided as a hard material to gnaw, and thus assist their physical development. On this diet the animals thrived, and when they weighed about 45 grams, and were selected for the control and experimental groups, they were in excellent physical condition, with smooth coats, bright eyes, and of frisky demeanour. The basal diet fed to both control and experimental animals was made up as follows: Starch (pure perimental animals was made up as follows: Starch (pure potato), 40 per cent.; sugar (fine castor), 17 per cent.; oil (refined palm-kernel), 15 per cent.; protein (pure casein), 23 per cent.; salt mixture, 5 per cent. The starch was in very fine powder, obtained from the British Drug Houses, and contained no vitamin. The sugar also was devoid of of vitamin. The oil was pure palm-kernel, which had been specially refined for the purpose by Planter's Foods, Ltd., Bromborough, Cheshire. It was practically white and by borough, Cheshire. It was practically white, and by the process of manufacture contained no fat-soluble A vitamin. A pure casein which had been specially manufactured by Genatosan, Ltd., Loughborough, supplied the protein requirement. No soda was used in its preparation, and it was rendered vitamin-free by extraction

with alcohol and ether. The salt mixture which was with alcohol and ether. The salt mixture which was employed in this research was a modified Hopkin's mixture, and was regarded as being complete for the mineral requirements of the animal. Its composition was as follows: NaCl, 51.8; MgSO₄, 7H₂O, 79.9; NaH₂PO₄, 2H₂O, 104.1; K₂HPO₄, 286.0; CaH₄(PO₄)₂, 162.0; calcium lactate, 390.0; ferric citrate, 35.4; NaF, 0.25; KI, 1.00; MnSO₄, 5.00; K₂SO₄, Al₂(SO₄)₃, 24H₂O, 0.025; Na₄SiO₄, 1.03. To make up the balanced ration, the following method was adopted: The fat was first melted, and the starch added to it so that the whole when mixed made a plastic mass. The remaining constituents, including the salt mixture prepared as above, stituents, including the salt mixture prepared as above, were then added, and the whole thoroughly well mixed and bottled. The balanced ration thus made had a nutritive ratio of 1:4, and a food-unit value of 152. The energy of 100 grams was 467.5 calories. To the rne energy of 100 grams was 40.5 calories. To the control group the three vitamins were supplied daily as follows:—Fat soluble A.: 4 drops of finest Norwegian cod-liver oil (which gave a definite reaction with the H.SO₄ test) per head per diem. Water soluble B.: 250 grams of a high-grade autolysed yeast was extracted with 75 per controlled by clashing for about three with 75 per cent. alcohol by shaking for about three hours in a Winchester, using a shaking machine. The alcoholic extract was then decanted off, and heated on a water-bath at about 80° C., using broken pot to facilitate the boiling of the alcohol. The dark-coloured tate the boiling of the alcohol. The dark-coloured aqueous extract remaining in the distilling flask contains the vitamin extract, and is filtered and made up to 250 c.c. with distilled water. This solution is employed as a supply of water soluble B. at the rate of 0.25 c.c. per head per diem. Water soluble C. was supplied by the filtered juice of fresh lemons at the rate of 0.20 c.c. per head per diem. These amounts, added to the basal list. diet, form a complete ration containing everything necessary for the normal nutrition of the rat. The control group, consisting of five male and four female control group, consisting of five male and four female rats, whose average weight at the beginning of the experiment was 42.5 grams, was fed the basal diet plus the three accessory factors A, B and C, while the experimental group had the basal diet plus 0.5 grams of Cortex Limonis B.P. per head per diem. The peel was cut so as to consist practically entirely of flavedo. The difference therefore in the growth rates between the control and the experimental groups depended solely upon the vitamin content of the lemon peel supplied. When the animals had become accustomed to the diets When the animals had become accustomed to the diets an attempt was made to find the approximate quantity an attempt was made to find the approximate quantity of food eaten per head per diem, and it was found after the experiment had been in progress about a month that the controls were eating approximately 16.5 grams in the male section and 12.7 grams in the female section, while the lemon peel male rats were eating 13.8 grams and the females 9 grams per diem. The controls, both male and female sections, grew at a satisfactory rate from the outset. The animals had smooth coats, bright eyes, and showed an apprehensiveness on handling. In a period of three The animals had smooth coats, bright eyes, and showed no apprehensiveness on handling. In a period of three days superficial effects became stabilised, so that a gain or loss in weight is probably significant. The control group was made up of five males and four females, and the lemon-peel group contained four males and four females. Each of these animals was weighed separately to within 0.5 gram, and the average was calculated for the male and female section of each group. In each section three of these consecutive averages were then taken, and the mean of consecutive averages were then taken, and the mean of them used as a point for plotting the growth curve. The chief result obtained from the experimental work so far recorded is that Cortex Limonis B.P. contains appreciable amounts of vitamin. Had this material been vitamin-free the animals would probably have died within three weeks of being put on to it, since the basal ration did not contain any vitamin. Actually growth was continued steadily up to the fiftieth day in the case of the males, when the average weight was 76 per cent. of the normal, while the females, after growing slowly for thirty-six days, were practically at a standstill. From this the authors conclude that, at the level at which it was fed the beauty and cartinal available. which it was fed, the lemon peel contained considerable amounts of vitamin, although not sufficient to ensure the continuance of growth of rats at the maximum rate. Although the females normally grew at a definitely slower rate than the males, it is difficult to account

entirely for the wide divergence in growth and well-being observed between the male and female lemon-peel rats, especially since the females did not respond appreciably on doubling the supply of lemon peel, or adding the known fat-soluble "A" requirement for the rat. The fact that, in this preliminary experiment, the authors have been able to show the existence of considerable amounts of vitamin in lemon peel is in accordance with the results obtained by other workers on the peels of other Citrus fruits.

Pharmaceutical applications.—The vitamins A. B. and

Pharmaceutical applications.—The vitamins A, B and C are all readily soluble in strong alcohol (say, 75 to 90 per cent.), which covers the range met with in pharmaceutical alcoholic preparations of lemon peel. Fat soluble A is less soluble as the alcoholic strength diminishes. Vitamin C is the most readily affected by heat, especially if the solution is at all alkaline. The presence of acid, however, makes it much more stable. Orange or lemon juice have been heated to over 100° C. for an hour or so without any marked loss of antiscorbutic power, owing to their citric acid content. Lemon peel has an acid reaction, but as there is much less acid present than in the juice, it is advisable to avoid heating preparations of the peel above 60° C. In making Syr. Limonis B.P. the citric acid in the juice used undoubtedly tends to stabilise the vitamiu. Vitamin C is readily destroyed by desiccation. unless there is a considerable amount of acid present. In conclusion, the authors expressed their thanks to Professor T. B. Wood, C.B.E., F.R.S., M.A., F.I.C., in whose laboratory at Cambridge much of the experimental work was carried out; and Professor J. McLean Thompson, M.A., D.Sc., F.R.S.E., F.L.S., of the Botanical Department of Liverpool University, for his useful criticisms and suggestions on the botanical side of the work; and also to G. Munro, Ltd., Covent Garden, London, for supplying information in regard to the commercial sources of lemons. Part of the expenses of this investigation were defrayed by a grant from the Science Committee of the Pharmaceutical Society.

Tests for Solubility of Quinine Sulphate in Dilute Sulphuric, Nitric, and Phosphoric Acids

By Bernard F. Howard, F.I.C., and Oliver Chick,

[ABSTRACT]

[The authors' other paper on quinine sulphate appears on p. 172.]

The authors refer to the following sentence, which occurs on page 934 of the British Pharmaceutical Codex under the heading "Action and Uses" in the monograph on quinine sulphate:—"One grain of quinine sulphate is rendered soluble by 1 minim of diluted sulphuric or nitric acid or 2 minims of diluted phosphoric acid; the acid should in each case be diluted with from six to ten times its bulk of water before adding the quinine salt." If this sentence means anything at all, it is clearly intended to give a solubility standard for the salt in these acids. These standards, the authors maintain, are chemically impossible of attainment; and, further, it is surely intended that the sentence should be included in the previous paragraph beginning "Soluble in," and not where it now appears, under "Action and Uses." These unfortunate tests have been brought to their notice by the fact of buyers actually trying them on quinine sulphate; the result being complaints that the quinine is not up to standard, whereas in reality a chemical impossibility has been demanded. The failure of these tests is due to an oversight in not allowing for the reduced strengths of the two acids in question in the 1923 edition of the B.P. Codex. In the 1911 test 20 per cent. more is allowed than is required to convert the quinine sulphate to the bisulphate (nitro or phospho-sulphate); while in the 1923 test the acid is actually more than 12 per cent. short of the necessary amount to form the soluble acid salt. Under the latter condition a temperature approaching the boiling point is necessary to effect solution; and, on cooling, the quinine salt rapidly crystallises out again. Even with just sufficient acid to form the bisulphate, solution cannot be effected without heating considerably, unless the quinine salt should be very impure, containing, say, some 25 per cent. of cinchonidine sulphate. It may be noted

that at 20° C. quinine bisulphate itself is easily soluble in eight times its weight of distilled water. The authors found that the 52 fl. grains of acid is just sufficient to convert the 50 grains of quinine sulphate into 62.2 grains of quinine bisulphate, which should be soluble in less than 500 fl. grains of distilled water. The fact that it was not soluble until heated to 45° C. (and took an even higher temperature to effect solution when at twice this dilution), indicates that such dilute acid (about 1 per cent) will not combine with quinine sulphate at twice this dilution), indicates that such dilute and (about 1 per cent.) will not combine with quinine sulphate at ordinary temperatures. Even when solution has taken place at this higher temperature, it does not appear that complete combination of acid and salt has resulted; for then there should be no recrystallisation taking place on cooling, whereas, in fact, crystals of quinine sulphate again came out when the temperature had dropped to 30° C. With dilute phosphoric acid similar results were obtained. Using the B.P. Codex quantities, a temperature of 55° C. was necessary to effect solution, recrysobtained. Using the B.P. Codex quantities, a temperature of 55° C. was necessary to effect solution, recrystallisation starting on cooling to 52° C. With dilute nitric acid matters were even worse, for here, owing to the greater drop in the strength of the acid, there is more than a 30 per cent, shortage from the soluble acid salt point. The authors gave the results of their experiments in the form of table and tested that ments in the form of a table, and stated that these actual points had been raised by customers, and much time and trouble had been spent in convincing them of the possibility of an "error" having crept into the B.P. Codex. In conclusion, they remarked that in connection with the forthcoming Conference on International Pharma-ceutical Standards, the attention of the British delegates should be drawn to the position of quinine sulphate (and incidentally all other quinine salts), which must be acknowledged to be one of the most important prepara-tions occurring in all current pharmacopæias. The vision of an international pharmacopœia—is, at the moment, probably nothing more than an idle dream owing to the extreme improbability of any measure of agreement being reached in the standards fixed, but it should be within the bounds of possibility to standardise "methods" to some extent. For example, they believe that an international interpretation of Kerner's quinine test, as far as "manipulation" is concerned, would, if adopted, be a step in the right direction. The authorities concerned with the pharmacopæia of each country could still fix their own "limit of test," but, at any rate, the method would then be uniform and the various of an international pharmacopæia is, at the moment, rate, the method would then be uniform and the various limits fixed would be comparable one with another, which, owing to loose wording and diversity of definition, is not at present the case.

Officers for 1925-26

The following list of officers for the ensuing year has been officially supplied :-

Chairman.—Mr. D. Lloyd Howard. President.—Mr. P. F. Rowsell (President of the Phar-

maceutical Society).

Vice-Presidents.—Those who have filled the office of President.

Vice-Chairmen.-Mr. F. W. Gamble and Mr. E. White.

Hon. Treasurer .- Mr. R. R. Bennett.

Hon. General Secretaries .- Messrs. C. H. Hampshire and

F. W. Crossley Holland.

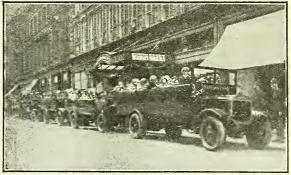
Other Members of Executive.—The President of the Pharmaceutical Society of Ireland (ex officio) and the chairman of the North British Branch of the Pharmaceutical Society (ex officio); Messrs. C. E. Corfield, H. Deane, N. Evers, H. Finnemore, B. F. Howard, H. B. Mackie, and three members to be elected by the Council of the Pharmaceutical Society (Messrs. T. Marns, L. M. Parry, and H. Skinner).

THE DRUGGISTS OF VIRGINIA are said to be selling too much whisky, and Wisconsin has amended the prohibition law of that particular State so that the drug stores can operate a soda fountain and also carry liquor in their establishment.

A REORGANISATION of the U.S. Federal prohibition enforcement agencies will create two separate and distinct forces under the control of Secretary Andrews, one dealing wholly with the permissive features of the law, the other with the prohibitory sections of the regulations.

Social Side

The placing of a wreath on Glasgow Cenotaph on Monday was a gracious act that was much appreciated Conference delegates proceeded to the City Chambers, where they met a number of the magistrates (corresponding to the English alderman) and councillors. The Lord Provost was absent on holiday, and Bailic McCowan, the senior magistrate present, headed the procession. Others present included Bailies Miller, Macfarcession. Others present included Bailies Miller, Macfarlane, and Hamilton, Sir John S. Samuel (secretary to Lord Provost Montgomery), Treasurer Duncan Graham, Mr. Philip F. Rowsell (President of the Pharmaceutical Society and of the Conference), Mr. Bilson (Vice-President), Mr. Thomas Guthrie (treasurer), Sir William Glyn-Jones (secretary), and Mr. Edmund White (chairman of the Conference). On the wreath was a card bearing a suitable inscription. The tribute was witnessed by a large crowd of spectators. Glasgow Cenotaph is a massive structure which stands on the east side of George Scource, directly in front of the main entrance to the Square, directly in front of the main entrance to the City Chambers.



[Cleworth

CHARABANCS STARTING FROM CONFERENCE HEADQUARTERS

A party of London members of the Conference, reinforced by a few from Brighton and other centres in the south, filled a reserved saloon carriage on the journey north on Monday. Mr. Herbert Skinner played the part of sidesman to perfection, arranging some interesting parties at the various tables. From the tentative nature of some of the geography ventured, it was evident that the route was new to many of the visitors.

The reception given by the Lord Provost in the City Chambers on the eve of the Conference proper was a brilliant function in a setting of great dignity and charm. Through the Satinwood Salon the guests passed, by way of the Mahogany Salon, to the Banqueting Hall, where the Lord Provost, the President of the Pharmaceutical Society and the chairman of the Conference briefly addressed the gathering. Dancing began at an early hour, and there was also two hours' vocal music in the Council Hall. Nothing, perhaps, left so marked an impression as the stateliness of the building itself, and many were the tributes to the graciousness of the Lord Provost in giving the Conference so hospitable a welcome.

Immediately after the chairman had been thanked for his address the ladies (with a fairly large male followingas our snapshot indicates) forsook pure science to make a charabanc tour of the city. The Cathedral was visited, and its historical and architectural points were carefully explained by a well-informed guide. Then the party proceeded to the Botanic Gardens, the University and the Art Gallerics. In passing much melancholy interest was evinced in the ruins of the Kelvin Hall, which was burnt out only last week.

After luncheon another ladies' excursion was arranged to several show places on the outskirts of the city. The pièce de resistance was Rouken Glen, a beautiful estate acquired some time ago by the municipality as a city

"lung." A mansion and beautiful old-world gardens are included, and the Glen and the waterfalls are extremely picturesque. This particular outing was very much enjoyed by all who were able to drag themselves away from the Science Section and Mr. Sargeant's legal résumé. On returning to town a much-appreciated tea at the Ca'dora Restaurant relieved the temporary fatigue induced by fresh air and a superfluity of eloquence.

The Conference banquet and dance, held in the Grosvenor Restaurant on Tuesday, were successful beyond the average of such functions. The attendance was with very few possible exceptions, the largest in the history of the Conference. Supporting the chairman (Mr. Edmund White) on his right at the top table were Sir Donald MacAlister, Bt., K.C.B., Mrs. White, Mr. Philip F. Rowsell (President), and Mrs. Sargeant; and on his left, ex-Bailie W. B. Smith, Mrs. Rowsell, Sir James Leishman, and Mr. F. P. Sargeant. Instrumental music was appreciated during dinner, while an army of waiters and waitresses marched and counter-marched; and after dinner, vocal music alternated pleasantly with the speeches.

The organisers of the function were unusually fortunate in securing a star of the magnitude of Sir Donald

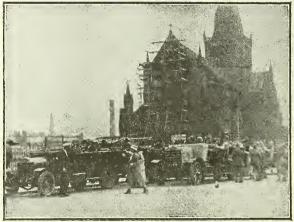


Photo Conference Party Leaving Glasgow Cathedral

MacAlister, who headed the list of speaker's (in more senses than one) with the toast of "The Pharmaceutical Society of Great Britain and the British Pharmaceutical Conference." How brilliantly Sir Donald managed the transition from gay (75 per cent.) to grave (25 per cent.) can hardly be conveyed in so brief a summary as the present, and the only regret expressed at the tables was that someone had not been inspired to have the speech-broadcast from the Glasgow wireless station. Perhaps, slily remarked the speaker, the age-long distinctions between men and women were becoming obsolete, and he ought to have addressed the audience as fellow-diners, fellow-smokers, or (for he had the honorary freedom of their corporation) fellow-pharmacists. When, on taking Mark Twain to "the Wild West Show" years ago, he had expressed his scepticism of what he thought were circus tricks, he was met with the reply that the show was a genuine article, since he, Mark, had tried broncho riding for a quarter of a minute. In like manner, continued Sir Donald, he himself had acted as a dispenser at Addenbrooke's Hospital, Cambridge, in an emergency for an hour and a half, and it was then that his hair first began to assume its present snowy appearance. He had read the British Pharmacopœia from cover to cover more frequently than any pharmacist of his acquaintance—unless it were Professor Greenish. He had read it eleven times and—far worse—had read every criticism that candid friends had forwarded.

Every Saturday morning, Sir Donald resumed after the laughter had subsided, he read the organ of the Pharmaceutical Society regularly—and he hoped that the pharmacists present could lay their hands on their hearts and say the same. After a few more witticisms came the transition; the reports of the Conference, the speaker generously remarked, represented real and lasting benefit—aspiration towards the improvement of scientific and technical knowledge. Something in Sir Donald's phrasing at this point suggested Walter Pater and the highest traditions of English prose; and on this lofty note the speech ended.

After this, more or less exemplary sentiments expressed in simple language brought the audience back to a more ordinary level. Mr. Rowsell and Mr. White, in responding to the toast, paid a tribute to Sir Donald and his work in Glasgow University, and promulgated, respectively, positive and negative praise of the Pharmaceutical Society, which (said Mr. Rowsell) was doing a great educational work and (said Mr. White) had no intention of going to Parliament for an Act to make pharmacists into doctors. "The City and Corporation of Glasgow" was the toast entrusted to Mr. Sargeant, who showed his mastery of dates in a résumé of the city's history. Ex-Bailie Smith, in reply, gave striking instances of the Corporation's enterprise and foresight, and pointed out that the average expectation of life in Glasgow was fifteen years longer than it was half a century ago. The final toast, "Our Guests," was given by Mr. Anthony McMillan, who singled out for mention Professor Stockman, Sir John Samuel, Dr. McGregor, Sir James Leishman, Mr. W. McCallum, and a few others: The Medical Officer of Health (Mr. McGregor) briefly replied; and just before eleven o'clock the floor was cleared for dancing, which continued till a late hour.

The excursion to Loch Lomond on Wednesday afternoon, July 29, took place in splendid weather—cloudy, with frequent intervals of sunshine which never became unpleasantly hot. Numbering over 500, the party left the low-level station shortly after 2 p.m., and Balloch pier an hour later. The trip up the Loch was thoroughly enjoyed by Scots and English alike, for while the majority of the latter were enraptured by the scenery for the first time, the former never tired of pointing out beauty spots which specially appealed to them. On arrival at Ardlui the official photograph was taken, and this was followed by high tea, under canvas. Shortly afterwards the return journey was regretfully commenced, and Glasgow was reached about 9.30 p.m.

At the tea-table one meets unexpected people from various parts of the world. For instance, one found as neighbour a quiet, unassuming young man who turned out to be a pharmacist attached to the establishment of the King of Egypt at Cairo. He indicated many unusual elements in a pharmacist's career, and looked as if he could tell much more. But pharmacists are invariably discreet. Then, not far away, were a charming couple from New Zealand, a pharmacist and his wife. These pioneers of Empire present at an ordinary Conference gathering give colour to Mr. White's dream of an Imperial Pharmaceutical Conference.

The work of the Local Executive Committee this year has been of an exceptionally onerous nature by reason of the heavy booking. More than five hundred members took tickets for themselves or their friends, and there were few absentees. All the details of this undertaking have been worked out with complete success, resulting in a Conference that has run smoothly and cheerily.

Newspaper and magazine advertising on the part of 140 national advertisers amounted to the huge total of \$88,050,861 during 1924. "Printers' Ink" reports that this vast sum was spent by firms whose goods are handled more or less by the drug trade. Some of the concerns spent well over a million dollars in this way. Colgate & Co., \$603,455; Lever Brothers, Co., Ltd., \$1,339,350; Palmolive Co., \$1,085,270; Wrigley Gum Co., \$1,250,000; E. R. Squibb & Sons, \$278,460; Coca-Cola Co., \$492.650; are represented as familiar examples.

Who Were There

The following took tickets to the Conference, and, in most cases, signed the visitors' book:—

Abbot, James, and Mrs., Glasgow Abbot, James, and Mrs., Gle
Adanis, F. W., Finner
Adams, Miss, London
Amos, E. C., Rhos
Andersou, J. A., Stockport
Anderson, R., Sunderland
Appleton, J. T., and
Sheffield
Arthur, H. P. and Mrs. Gle Sheffield Arthur, H. P., and Mrs., Glasgow Ashword, T., and Mrs., Liverpool Aspell, J., Bath Barker, J., Leicester Bayles, H., London Bayne, T., Edinburgh Beacock, J. H., Leeds Beardsley, W. J., and Mrs., London London
Beaton, P. S., and Mrs., Port
Glasgow
Beaumont, W. L., Leith
Bell, John, Glasgow
Bell, J. T., and Mrs., Birmingham
Bennett, R. R., London
Berry, H., Birmingham
Bethune, W. J., and Mrs.,
Inverness
Bewglas, F., Edinburgh
Bilson, F. E., and Mrs., Bournemouth London Bilson, F. E., and Mrs., Bourne-mouth
Black, D., and Mrs., Glasgow
Blackie, J. J., Edinburgh
Bonner, C. G., London
Booth, W. E., and Mrs., London
Bourne, H. F., Torquay
Bowie, G. D., London
Brackenbury, W. R., and Mrs.,
Middlesbrough
Briggs A. R. and Mrs. Horbury Middlesbrough
Briggs, A. R., and Mrs., Horbury
Briggs, G. W., Mrs. and Miss,
Sutton-in-Ashfield
Brindle, H., and Mrs., Manchester
Brown, W. R., and Mrs., Giffnock
Browne, F., and Mrs., Ealing
Browne, W., Mrs. and Miss,
London
Bruce Miss W. Aberley Bruce, Miss M., Aberdeen Bryant, E. G., Aberdeen Buckingham, H., Mrs. Mr. G. N. W., Birmingham Bullions, J., Pelaw-on-Tyne Caine, J. C., Mrs. and Miss, Birkenhead Cameron, Mr. and Mrs., Peking Chalmers, W., and Mrs., London Chalmers, Mrs., Dumbarton Chapman, J. W., and Mrs., Shotts Chisholm, A. M., Glasgow Christic, A., Catheart Clarke, R. Feaver, and Miss, Clarke, R. Feaver, and Miss, New Milton Cleary, H. A., Brighton Cleworth, J., and Mrs., Man-chester chester Cockburp, C. T., Glasgow Collings, R., and Mrs., London Cooper, F., and Mrs., London Coull, Dr., and Mrs., Edinburgh Cowley, T. N. B., and Mrs., Cowley, T. N. B., and Mrs., Ealing Crawford, A., Glasgow Crossley-Holland, F. W., London Crombic, J., and Mrs., Glasgow Dalziel, C. M., Carlisle Dey, A. J., Edinburgh Dick, A. A., Bellshill Dickson, D., and Mrs., Man-chester Dickson, R., and Mrs. Glascow chester B., and Mrs., Manchester Bickson, R., and Mrs., Glasgow Dixon, W. L., London Dodd, Miss M. C., Wallasey Dolbean, J., Oxford Dow, W. B., London Downing, J., and Mrs., London Duff, P. M., and Mrs., Glasgow Duncan, J. G., Mrs. ard Miss, Wallasey Duncan, W., Edinburgh Eastwood, T. E., and Mrs., Manchester Edwards, R. G., and Mrs., Fallowfield Manchester
Edwards, R. G., and
Fallowfield
Ellerington, J. P., London
Ellis, Professor, Glasgow
Etherington, H., Lewisham
Evers, N., London
Falding, W. B., London
Fernando, Mrs., London
Ferniday, A. J., and
Liverpool

Finnemore, H., Croydon Fisher, J. H., and Mrs., Dunferm-Finemore, H., Croydon
Fisher, J. H., and Mrs., Dunfermline
Flett, W., Glasgow
Forbes, J., and Mrs., Perth
Ford, Miss B., Kirriemuir
Foster, F., Bradford
Foster, J., Glasgow
Fouracre, R., London
Franklin, J. H., and Mrs., Manchester
Fraser, J., Dumfries
Fraser, J., Dumfries
Fraser, Miss J. N., Glasgow
Freke, Mrs. and Miss, London
Fyfe, J., and Mrs., Glasgow
Garrow, R. W., Keith
Garrow, W., and Mrs., Glasgow
Garzow, W. E., London
Gerrard, S., and Miss, Oldbury
Gillmour, A. B., Glasgow
Gilmour, A. B., Glasgow
Gilmour, J. P., Mrs. and Miss,
London
Glyn-Jones, Sir W., and Lady, Glyn-Jones, Sir 11., London Govier, R. G., and Mrs., Wallasey Gracie, H. H., and Mrs., Glasgow Graham, R., and Mrs., Glasgow Graham, W. T., London Grant, P., and Mrs., Rock Ferry Gray, W., Walthamstow Grier, J., and Mrs., Manchester Grimes, H. C., and Mrs., co. Glyn-Jones, Sir W., and Lady, Gray, W., Walthamstow
Grier, J., and Mrs., Manchester
Grimes, H. C., and Mrs., co.
Dublin
Guthrie, T., and Mrs., Glasgow
Hallett, W. J., and Mrs., Bath
Hampshire, C. H., London
Harley, D., Musselburgh
Harley, T., Perth
Hart, J. H., Ross
Hart, Mrs. J. H., Ross
Hart, Mrs. J. H., Ross
Harvey, D. K., London
Havard, H. L., and Mrs., Ealing
Hawes, G. F., and Mrs., Bath
Haworth, E. B., and Mrs.,
Great Harwood
Hay, R., and Mis, M., Newcastle-on-Tyne
Hay, W. F., and Mrs., Sheffield
Higgs, A., and Mrs., Sheffield
Higgs, A., and Mrs., Kingstonon-Thames
Hill. J. R., Edinburgh
Hilliard, F. G., Newcastle-onTyne
Hills, F. W., London Hilliard, F. G., Mendale Tyne
Hills, F. W., London
Hindes, Miss G., York
Hirst, J. L., and Mrs., Liverpool
Howard, D. Ll., Hiford
Hughes, Mrs., J. W., Wrexham
Hughes, M. S., Mrs. and Miss,
Liverpool Hughes, Mrs., J. W., Wrexham Hughes, M. S., Mrs. and Miss, Liverpool Hunter, J., Catheart Innes, J., Glasgow Irvine, P., and Mrs., London Irwin, H. A., and Mrs., London Jack, J., Mrs. and Dr. Mary, Arhroath Jackson, J. G., and Mrs., Sheffield Jenkin, A. H., London Jenkin, C., and Miss, Bath Jensen, A. B., Birmingham Jones, A. J., Liverpool Jones, H. H., Liverpool Jones, H. H., Liverpool Jones, J. E., and Mrs., London Keall, J., and Mrs., Wandsworth Keith, A. R., and Mrs., London Kirkby, W., Stockport Knott, E., Edinburgh Knott, H., and Mrs., Bolton Lawman, F. A., and Mrs., London Lawman, F. A., and Mrs., London Lawrenge A., and Mrs. Liverpool London Lawrence, A., and Mrs., Liver-Lawrence, A., and Mrs., Liverpool
Jean, W., Burton-on-Trent
Lees, J., Oldham
Lennox, J., and Mrs., Glasgow
Lescher, T. E., Liverpool
Lester, L. W., and Mrs., Chelsea
Lodge, J. A., Bradford
Lothian, J., Portobello
Maben, T., London
MacAllister, Miss M., Glasgow
Macbeth, Mrs., Perth
McBrydc, J., Colchester
MacCallum, Miss, Glasgow
McEwan, A., and Mrs., Glasgow
MacFarlane, M., and Mrs., Glasgow pool

MeGilliwray,
Glasgow
MacKay, G., Glasgow
MacKenzie, D. S., and Miss,
Glasgow
Mackle, H. B., and Mrs., McGilliwray, J., and Glasgow
Mackle, H. B., and Mrs.,
Brighton
Maclaren, A., Glasgow
McMillan, A., and Mrs., Glasgow
McMurray, P. B., Helensburgh
McNicol, Miss A., Glasgow
Macsween, A., and Mrs., Glasgow
McVitae, J. B., and Mrs.,
Glasgow
Mair, W., Edinburgh
Mallinson, S. A., London
Maun, E. W., and Mrs., Birmingham
Marchant, D., Eastbourne Ingham Marchant, D., Eastbourne Marus, T., and Mrs., Ealing Marsh, Miss B., Wallasey Marsh, W., Wallasey Matthew, J. E., and Mrs., Sheffield Sheffield
Mead, Mrs., Walthamstow
Meldrum, M., and Mrs., Ayr
Merrin, A. C., and Mrs., London
Merson, G. F., Mrs. and Miss,
Edinburgh
Miller, H., and Mrs., Cheltenham
Miller, J. W., Glasgow
Mirchell, P., Mrs. and Mrs. P. H.
Dumbarton
Moffat, W., and Miss K., Glascow
Moffat, W., and Miss K., Glascow Moffat, W., and Miss K., Glasgow Monaghan, J. E., and Mrs., Monaghan, J. E., and Mrs., London Morgans, Miss M., Ealing Morris, W. O., and Mrs., Sutton Morson, L. J., and Mrs., London Murray, Mrs. R., Glasgow Mumford, H. G., and Mrs. London London
Naylor, A., and Mrs., Southport
Naylor, F., and Mrs., Southport
Naylor, F., and Mrs., Southport
Neve, H. C., and Mrs., Norbury
Noble, G. A., and Mrs., London
Nundy, W. L., and Mrs.,
Leamington
Oakley, H., Mrs. and Mr. H. R.,
Wolverhampton
O'Flannaghan, Miss F. M., and
Miss A., Monkstown
Parker, H. T., Mrs., Miss D.
and Mr. T. M., London
Parry, L. M., Liverpool
Peck, E. S., and Mrs., Cambridge
Pegg, J. A., Mansfield
Perrédés, J. F., Cambridge
Phillips, S., and Mrs., Wolverhampton
Pidd, H. L. and Miss, Manchester Perfedes, J. F., and Mrs., Wolver-hampton
Pidd, H. J., and Miss, Manchester
Pollard, J. T., Stockport
Randle, Miss D. G., London
Rawlins, T., and Mrs., Kentish
Town Town
Reed, W. H., and Mrs., New
Zealand Zealand
Rees, D. A., and Mrs., London
Richards, H., Swansea
Richardsen, A., Hull
Ritter, Rev. H. F., London
Roberts, Miss J., Manchester
Robertson, Mrs., Glasgow
Ross, A. M., Glasgow
Rowsell, P. F., Mrs., Miss and
Mr. P. D., Exeter
Royle, J. W., London
Sargeant, F. P., and Mrs., Leeds
Saunders, A., and Miss, Glasgow
Saunders, W. H., and Mrs.,
Liverpool

Sayers, E., and Mrs., Lewisham Sayers, W. C., Mrs. and Miss, Lewisham Lewisham
Scobie, L., and Mrs., Airdrio
Seivwright, J., and Mrs., Glasgow
Sharp, J. R., London
Sharvill, F., London
Short, G. R. A., Reading
Shuttleworth, Mrs. S. A., London
Sidebottom, S. A., and Mrs.,
Gswaldtwistle
Simmons, E. H., and Mrs.,
Salford Simmons, E. Salford Salford
Sinclair, D. M., Mextorough
Sinclair, G., Peebles
Skinner, H., and Mrs., London
Skinner, J., Stirling
Smalley, C., and Mrs., Ipswich
Smith, F., Mrs. and Miss M. A.,
Birmingham
Smith, G., Dundec
Smith, J. M., and Mrs., Alexandria Smith, J. M., and Mrs., Alexandria
dria
Smith, J. H., Mrs. and Miss,
Glasgow
Smith, R., Mrs. and Miss,
Storroway
Smith, T. H., Glasgow
Srence, J., Elgin
Sproule, Miss R., London
Stainer, J. W., Folkestone
Stewart, Miss H., London
Stone, M. H., Glasgow
Storey, E. H., and Mrs., London
Sutherland, A., and Mrs., Dumbarton harton Swanston, W. E., and Mrs., Swanston, W. E., and London Symmons, Mrs., Oxford Thomson, W., Glasgow Thomson, W. S., Glasgow Titterington, E., and Cairo
Cairo
Cocker, G. A., London
Todd, J. P., and Mrs., Glasgow
Trick, W. B., New Barnet
Trippett, J., and Mrs., Sheffield
Tristram, W. J., and Miss,
Liverpool
Turner, Mis., Exeter
Walker, C. F., Manchester
Walters, J. T., and Mrs., London
Ware, A. H., Exeter
Waring, E. S., and Mrs., Nottingham Cairo ham Watkins, A. G., London Watkinson, H. A., Farnworth Wherly, C., Wallarey White, E., and Mrs. London White, T. W., Mrs. and Miss, Glasgow Wiggin, J. C., Ipswich Wilkinson, Miss, Birkenhead Williams, D. J., Bath Williams, J., and Mrs., Manchester Williamson, Miss E., Manwilliamson, Miss E., Man-Williamson, Miss E., Man-Williamson, chester Williamson, F. A., Preston Wilson, R. W. R., Glasgow Wilson, W. P., Had lington Wilson, W. W., and Mrs. Glasgow
Winch, H. C. M., Sunderland
Wokes, F., Liverrool
Wocd, J., and Mrs., Wallasey
Wrench, A. G., and Mrs.,
Croydon
Wride, F. B., Southampton
Wrigley, Mrs. P., Sheffield
Wyatt, W., and Mrs., Manchester
Young, A. E., and Mrs., Leicester
Young, Miss D., Wallington

Insanity Gas.—At the United States Public Health Service's Conference, recently called by Surgeon-General Hugh Cumming in Washington, representatives of the du Pont, Standard Oil and General Motors Companies admitted 113 cases of poisoning among the employees from tetra ethyl lead. How long the men were employed in handling tetra ethyl before they showed signs of poisoning, what happened to men who were poisoned, whether they were able to work at other occupations, and whether they were permanently disabled was not brought out. Standard Oil officials estimate that 15,000,000,000 gallons of gasoline would be sold in the United States in the next year, and if this were true a "New York Times" correspondent points out that 50,000 tons of lead would be distributed over the streets of the country.

Pharmaceutical Society

of Great Britain

Edinburgh Examination Results

Major Examination

At the Major examination of the Pharmaceutical Society, held in Edinburgh during the present month, eight candidates were examined; the following three passed :-

Cox, William Marshall, Newcastle-on-Tyne Jackson, Francis Joseph, Edinburgh Martin, Vivian James, Edinburgh

Qualifying Examination

		PART 1				PART II			
 .	No.	Absent	Failed	Referred	Passed	Absent	Failed	Referred	Passed
Entered for whole examination Entered for Part II and referred	29		5	6	18	-	1	7	10
subject in Part	3	1		1	2	1		1	
Entered for Part I only	100	4	21	34	41	-			-
Referred subject in Part I only Entered for Part	34	1	1	11	21	-			-
II only	94	2		-		2	. 3	27	62
Referred subject in Part II	10					-		4	6
Total	270	8	27	52	82	3	4	39	78

Referred in one subject: Botany, 10; chemistry, 42; materia medica, 16; pharmacy, 23; total, 91.

Part II

The following, having satisfied the examiners in Part II, have been registered as chemists and druggists:

Abbott, R. B., Knaresborough

Adamson, H. J., Pittenweem

Armstrong, T. A., Seaham Harbour

Bowman, John, Edinburgh Bowman, J. W., Carlisle Campbell, I. D., Beauly Carus, Huldah H. P.,

Edinburgh Chappell, W. H., Carlisle

Chappell, W. H., Carrist Clark, Walter, Hull Cowan, F. D., Glasgow Dewar, Hugh, Whitburn Dixon, C. J. Penrith Douglas, A. C., Aberdeen Eddie, Janet L., Melrose English, Edith, Dundee Ewen, Ethel M., Aberdeen Findlay, W. G., Cullen Forbes, H. P., Aberdeen Forrest, A. R., Aberdeen Fyfe, H. D., Alloa Gittins, G., Bishop Auckland,

Green, F. M., Sunderland Grierson, T., Rutherglen Henderson, P. T., Glasgow Hughes, G. I., Mold Iddon, Tom, Blackpool Ironside, J. D., New Deer Jenkins, Edith M., Dundee Johnston, S., Aberdeen Joiner, W. B., Nairn Jones, H. F., Dundee Kane, Joseph, Glasgow Keller, J. F., Glasgow Kerr, J. A., Paisley Kirby, S. J., Bradford

Lyall, John, Macduff Macdonald, John, Glasgow McPherson, Annie Glasgow Manson, J. R., Elgin. Miller, F. P., Stoke-on-Trent Milne, J. F., Culter Milne, W., Thankerton Morgan, Doris, Beal Morris, Helen A. R., Dunfermline Mould, W., Knaresborough Munro, W. B., Hamilton Murison, J. M., Glasgow Parry, E. D., Sale Paterson, J. S., Grantownon-Spey aul, Elizabeth Paul, McD.. Clydebank Penman, J. C., Dundee

Pritchard, O., Manchester Rhodes, H. V., Bradford Rosie, Isabella F., Peni-

cuik Ross, A. S., Grantown-on-

Spey Sime, David, Glasgow

Smith, Elizabeth M. K., Dyce

Smith, F. W., Dundee Soper, Ruth, Aberdeen Stewart, A. G., Edinburgh Taylor, Catherine K., Kilbirnie

Taylor, Elsie M., Sunderland

Telford, J. A., Corwen Walker, A., Jedburgh

Wardle, Elizabeth H., Haverton Hill Welsh, D. A., Peebles

Whitelegg, E., Huddersfield Woolley, W. E., Blackburn

PARTS I AND II

The following, having satisfied the examiners in Parts I and II, have been registered as chemists and druggists :--

Bell, R. T., Sunderland Dudgeon, W. H., Leith Ferguson, J. L., Falkirk Fraser, Margaret C., Dumfries

Hetherington, Isabella K., Moffat

Mearns, S. N., Boat-of-Garten Miller, D. P. B., Leith Reid, Mary L., Leith Stewart, Isabella B., Kirkcaldy Wright, T. M., Edinburgh

Insurance Act Dispensing

Record of matters concerning Chemists' interests in the National Health Insurance Acts.

ENGLAND AND WALES

Local Reports

Bradford.—The Pharmaceutical Committee has been elected as follows: Chairman, Mr. A. Faull; Vice-Chairman, Mr. A. C. Pyecroft; Secretary, Mr. A. T. Bailes; with Messrs. F. W. Appleyard, R. Butler, R. A. Cross, G. Penty, H. Raw, R. T. Silson, W. Sutcliffe, A. Smith, J. W. Thorpe, and J. A. White; Pharmaceutical Services Subcommittee, Messrs. Faull, Thorpe and White; Joint Services Subcommittee, Messrs. Faull and Thorpe.

Cambridgeshire.—The Pharmaceutical Committee met on July 28, Mr. B. Sidney Campkin presiding. Mr. Campkin was re-elected *Chairman* and Mr. Barker Secretary, also as representative on the Insurance Committee. Messrs. A. Coulthard (Sawston) and G. E. Beall were co-opted members of the Committee. After a brief discussion of the "Testing of Drugs," the further consideration was deferred.

Preston.—The number of prescriptions dispensed by local chemists during 1924 was 269,611, against 216,335 in the previous year, an increase of 53,276. 1923 showed an increase of 41,211 over 1922. In comparison with nine other Lancashire county boroughs, Preston consumed 20 per cent. more medicines. The total cost of the Preston drug bill for 1924 for insured persons was £10,266 15s. 4d., an increase of £2,363 over 1923.

Sheffield.—At a recent meeting of the Sheffield Pharmaceutical and Chemical Society the following officers were elected: President, Mr. F. Hindle; Vice-Presidents, Messrs. H. B. Hammond and J. Austen; Treasurer, Mr. H. Antcliffe; Secretary, Mr. J. H. McConnachie; Auditors, Messrs. T. S. Peebles and J. C. Crowe; Librarian, Mr. Gregory. Students' competitions will be held monthly during the session, and a programme was arranged including a smoking convert and an entertain arranged. including a smoking concert and an entertainment in aid of the Benevolent Fund.

Summer Outings

Scott and Turner's Outing

Four hundred employés of Scott & Turner, Ltd., makers of Andrews Liver Salt, Newcastle-on-Tyne, had an excursion to Redcar recently. Sports were indulged in, the prizes being subsequently presented by Mr. Gerald A. France. Mr. Rickard (warehouse foreman) proposed a vote of thanks to the directors, and Mr. Pinkney (traveller) seconded.

Taylors' Social Guild

THE Social Guild of Taylor's Drug Co., Ltd., Teeside Branch, Leeds, held their annual summer outing recently, when a party comprising forty representatives from West Hartlepool, Stockton-on-Tees, Thornaby, Middlesbrough, South Bank and Redcar journeyed by charabancs to Barnard Castle, afterwards visiting Middleton-in-Teesdala and High Force, where a most enjoyable day was spent.

Trade Report

42 Cannon Street, E.C.4, July 30.

As is usual on the eve of the August Bank Holiday, business in the produce markets has slackened off considerably, and the quietest period of the year is being entered on. A larger quantity of drugs than usual was disposed of last week subsequent to the auction, which made the public sale results somewhat better than they appeared on the surface. New crop Belgian chamomiles are available in a fortnight at reasonable prices. Balsam tolu shows a slight advance on the spot, and senega is in fair demand at higher prices. Spot menthol is a trifle easier. Red native sarsaparilla is firm. Pepper has shown a sharp advance, and the sales of white Muntok have been unusually heavy. Nutmegs are steady and mace very scarce. Dutch caraway seed is the turn firmer for new crop; Maltese cumin of the new crop is firmer for new crop; Maltese cumin of the new crop is reported heavily damaged by rain. Business in essential oils is quieter this week, but bergamot has been in active demand and is dearer. Lemon is quieter, and prices are slightly easier. Clove is tending firmer. Steady rains in the producing districts may help new crop American peppermint oil. Wormseed is dearer. Star anise is firm, and may again advance; cassia also is firm. In the group of pharmaceutical chamicals keen. is firm. In the group of pharmaceutical chemicals keen competition continues rampant, and prices of a number of items have declined; among them are acetanilide, amidopyrin, barbitone, methyl salicylate, phenolphthalein, amidopyrin, barottone, literityi salicylate, phenosphilacidi, resorcin, salicylic acid, sodium salicylate, and thymol. Hydroquinone is firmer. Among industrial chemicals business continues limited, partly owing to unsettled labour conditions. Prices, however, are fairly well maintained, with few alterations. Lead products have maintained, with few alterations. Lead products have been advanced, in sympathy with the higher prices for metal; oxalic acid is irregular, and codium nitrite steadier. Carbolic acid crystals are barely steady. Among vegetable and similar oils business is rather better; groundnut is active and firmer, palm-kernel and soya oils are dearer. Castor and coconut are easy; linseed is slightly cheaper, and turpentine firmer on a more active market. more active market.

Higher	Firmer	E asie r	Lower
Almond oil Balsam tolu Bergamot oil Palm karnel oil Pepper Red lead Senega Soya oil White lead Wormseed oil	Anjse, star, oil Caraway see I Cassia oil Citronella oil (Cy.) Clove oil Mandarin oil Ground nut oil Hydroquinone Sodium nitrite Turpentine	Acetanilide Amidopyrin Bois de rose oil Citric acid Lemon oil Linsecd oil Mint oil Menthol Mercury Methyl salicylate Sodium nitrate	Barbitone Lemongrass oil (Cochin) Phenolph thalcin Resorcin Rubber Sodium acetate Sodium salicylate Thymol

Exchange Rates on London

The following is a list of Continental and other exchange rates against the pound sterling on London prevailing at 4 p.m. on Wednesday:—

Place	Method of Quoting	Par of Ex- change	July 22	July 29
Amsterdam Berlin Brussels Calcutta Constntnple Greece Hong Kong Italy Kobe Lisbon Madrid Montreal New York Oslo Paris Singapore Switzerland Vienna Warsaw	FI. to £ M. to £ Fr. to £ Per ripp. Pst. to £ Dr. to £ T.t. \$ Lire to £ Yen Escu. Pts. to £ \$ to £ \$ to £ \$ to £ Fr. to £ Fr. to £ Fr. to £ Sh. to £ Sh. to £ Sh. to £	12,107 20,43 25,224 110 25,221 24,581 5344 25,224 4,864 4,864 18,159 25,221 24,02	12.09 \$ — 12.10 20.41 — 20.43 105.05 — 105.15 18 d.1 — 18 £d. 860 — 875 310 — 313 27 d.1 — 28 \$d. 132 \$1 — 132 \$1 20 \$1 d. — 20 \$3 \$1. 23 \$1. 23 \$1. 24 \$1. 24 \$1. 25 \$1.	12.09¼—12.10½ 20.40—20,41 105.00—105 10 18½d.—18½d. 865—880 312—315 27¾d.—28½d. 131¼—132½ 20¾d.—28¼d. 233.35—33.57 4.84½—4.85½ 4.85½—4.85½ 4.85½—4.85½ 4.85½—4.85½ 4.85½—4.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.85½ 4.85½—34.35 20.30—34.60

[&]quot; Nominal.

Cablegram

New York, July 29.—Business is dull. Cartagena ipecacuanha is higher at \$2.35 per lb., and senega has advanced to 55c per lb. Peppermint oil in tins is lower at \$19.50 per lb., and copaiba is also cheaper at 53c.

Crude Drugs, etc.

Almond oil.—French expressed dearer at 3s. per lb., ex wharf.

Almonds.—The previous reports of a good Spanish crop are confirmed, and although there is no carry-over of Jordan and Valencia almonds the extremely high figures quoted for new crop are not warranted. As regards manufacturing descriptions, supplies are not likely to be heavier than last year, but it is probable that the present fairly high prices may be easier when new crops are available.

ALOES.—Curação is firm, good pale livers being scarce at up to 95s. per cwt. on the spot.

Antimony.—Business is hand-to-mouth at the inflated prices: high-grade refined is quoted by leading home producers at £85, but ordinary brands are obtainable at about £75 per ton. Quotations for Chinese on the spot are at around £64, but terms for shipment or arrival are nominal at upward of £60.

ANTS' EGGS.—New crop for prompt shipment is offered at about 3s. to 3s. 3d. per lb., c.i.f.

BALSAM TOLU has advanced from 3d. to 6d. per lb., good bright hard offering at 4s. 9d. per lb., and small

sales have been made at this price.

BISMUTH.—There is every indication of a continued firm market, due to a good steady demand, while current supplies are none too ample to keep pace with present needs. The Convention price, however, is retained at 10s. per lb., while some premium is apparently obtainable

Tos. per 16., white some premium is apparently obtainable for outside parcels.

Camphor (refined).—Japanese slabs continue quiet at 2s. 9d. per lb. on the spot, and July-August shipment is 2s. 7½d. c.i.f.; ¼-oz. tablets are 3s. 4d. on the spot.

Caraway seed is the turn firmer, as business has been done in new crop Dutch for prompt shipment at 28s. 6d.

CASCARA SAGRADA.—New crop is quoted at 48s. per cwt., c.i.f. in one direction, others quoting 52s. 6d. to 53s. c.i.f.

CHAMOMILES.—The new Belgian crop season has now opened, and samples of the first pickings received in London show a good white flower. These, of course, have been specially picked, but are not representative of the whole crop, because as the season advances the flowers become less white and smaller, so that buyers are more likely to receive "fair average quality." Sellers quote 137s. 6d. per cwt. net gross for net in cwt. bales for delivery in a fortnight.

CLOVES .- Zanzibar remain steady on spot with sellers ctoves.—Zanzibar remain steady on spot with seilers at from 11¼d. to 11¾d. per lb. as to quality. To arrive, sales of October-December have been made at 11¾d. to 11d. per lb. c.i.f., being easier. The landings in London during the week ending July 25 amounted to 416 and the deliveries to 770. leaving a stock of 11,748 bales, against 26,687 in 1924 and 14,610 bales in 1923. So far this year the landings have been 8,957, against 37,264 in 1924, and the deliveries 12,213, against 30,554 in 1924.

COCOA BUTTER.—At auction on Tuesday 320 cases Brazilian offered and 127 sold at from 1s. 1 d. to 1s. 1 d. per lb. in bond. Prime English is quoted at 1s. 6d., and C.F.R. at 1s. 6½d. per lb.

GENTIAN remains an unprofitable drug to handle. A considerable quantity of powder that is offered appears to be very poor quality, and if sold is liable to cause

GLUCOSE.—Guaranteed water-white for July-August delivery is quoted at 25s. 6d. per cwt., duty paid, landed terms.

Hydrastis.—Spot values are unchanged at about 20s. to 20s. 6d. per lb.

LOBELIA HERB is unchanged at 1s. 11d. per lb. on the spot, and new crop, which should be available shortly, is firm at about 1s. 6d. c.i.f.

Mace continues very scarce, and prices remain high, common East Indian realising 4s. per lb.

MENTHOL is quiet, spot sellers of Kobayashi-Suzuki quoting 47s, to 46s, 6d, per lb. To arrive, August-September shipment is offered at 42s, 6d, c.i.f., and Septem-

ber-October at 39s. to 40s. c.i.f.

MERCURY.—There has been no new development, but it has been found possible to place orders at a slight concession, although holders have shown no real evidence of prossing sales. A fair quotation may be called \$13 17s. 6d. per bottle, although some sellers still want \$214. The market has been of late in some degree influenced by fluctuations in the Italian rate of exchange, while rather more second-hand parcels have been offering from the Continent at down to about £13 5s. c.i.f. The outlook is not altogether clear, although it is assumed in some quarters that users are but poorly

OPIUM.—Although the new Turkey crop is on the eve of collection, shippers talk of higher prices, but at the same time they are anxious to sell to London. spot price of Turkey druggists is 2s. 7d. per unit.

spot price of Turkey druggists is 2s. 7d. per unit.

Constantinople, July 15.—"During the period June 30 to date arrivals were as follows: Druggists', 19; Malatia, 1, and 'softs.' 3 cases. Stocks amounted to: Druggists' 114, 'softs,' 43, and Malatía, 19 cases. During the past fortnight 34 cases druggists' were sold at £T33-35 to £T36. and two cases of Malatia at £T35 per oke. Prices of old stock remain firm, but we hope that there will be a decline as soon as supplies from the new crop come in. It would now be to the advantage of European consumers to purchase parcels of goods at lower prices, for as soon as the crop passes into dealers' hands prices will be increased on every possible occasion."

PEPPER.—Towards the close of last week a large expert

PEPPER.—Towards the close of last week a large export business was done, particularly in white Muntok, and prices improved sharply; there has since been a slight reaction. Fair black Singapore on the spot advanced to 9d., but closed easier on Wednesday at 8½d. to 8¾d.; to arrive the sales include August-October at 83d. to and October-December at 83d. to 81d. c.i.f., closing sellers at the lower figure. Lampong for August-October and October-December has been sold at 8½d. to 9d. to 8\frac{1}{6}d. c.i.f. White Muntok is much dearer, with spot sales at 1s. 1d. to 1s. 1\frac{1}{2}d. per lb. To arrive, the sales include August-October at 1s. 1\frac{1}{2}d. to 1s. 1\frac{3}{4}d. to 1s. 1\frac{1}{4}d., and October December at 1s. 1\frac{3}{4}d. to 1s. 2\frac{1}{4}d. to 1s. 1\frac{3}{4}d. c.i.f. London. Singapore on the spot is 1s. 1d. per lb.

PIMENTO is firm with spot sales at 4d. per lb.

Podophyllum Root.—American is steady at about 65s. per cwt. on the spot, and for forward shipment 57s. 6d.

c.i.f. is quoted.

RUBBER.—There have been some violent reactions since especially on the forward positions; October-December, which rose to 4s. 0.d. about a fortnight ago, was done down to 2s. 10d. on Tuesday. This heavy decline of about 9d. per lb. in the spot value is chiefly due to nervousness on the part of outside holders, who apparently bought at the higher level of prices. Combined with this, there has been a considerable amount of propaganda from America with the object of exercising pressure on the Home Government to release larger quantities over the next few months-this has created a certain amount of uneasiness, and quantities were thrown on the market from all directions. Stocks last week were again reduced by 36 tons, and at present stand at 4,014 tons. Quotations (Wednesday, 5 p.m.): No. 1 standard ribbed smoked sheet, spot and July, 3s. 9d.; October-December, 3s. per lb.

SARSAPARILLA.—Red native is firm at from 1s. 7d.

to 1s. 8d. per lb.

SCAMMONY ROOT.—Mexican on the spot is quoted at

about 34s. per cwt. for 17.9 per cent.

SEEDS .- The seed market remains firm but quiet at the following prices:—Anise: Spanish, 60s.; Russian, 50s.; Levant, 49s. Canary seed: Mazagan, which is Source, remains firm at 34s. per cwt. on the spot, but there is very little business doing; good bold Spanish is offered at 36s. spot. Corlander seed is in small demand with sellers at 22s, 6d, spot for Morocco. CUMIN SEED is quiet; Maltese has sellers at 55s.; Morocoo is steady at 52s. 6d. on the spot. It is reported that rain has severely damaged the Maltese crop, with the result that shippers will not sell on "f.a.q." terms. Dill seed is steady at 21s. 6d. Fenugreek seed (Morocco) is steady at 17s. 6d. per cwt. spot. Hemp seed: Manchurian is steady at 17s. LINSEED: Morocco is quoted

All to 2s. Spot. Mustard seed: English is 32s. 6d. to 35s. Senega is in fair demand; some arrival business was done recently at 2s. 1d. to 2s. 2½d. per lb. c.i.f. and resellers ask 2s. 3d. c.i.f., first hands quoting 2s. 5d. c.i.f.; spot price is 2s. 4½d. net for old crop.

SHELLAC has been quiet throughout, the closing value of usual standard TN orange quality on the spot being from 235s. to 240s. per cwt.; fine second orange 275s., and AC cakey 240s. Futures have been barely steady; August delivery has been sold at 220s., and December 215s. TN for July-August shipment is 215s. c.i.f. in bags. Calcutta closed on Wednesday at rs. 101 value.

VALERIAN ROOT.—Indian now landing is quoted at 1s.

per lb.; no Belgian appears to be available.

WAX, BEES' .- Sales include Benguela at £8 10s. per cwt. c.i.f.

Essential Oils

The chief feature of the week is an active demand for bergamot at advancing rates. Forward prices are dearer than spot values. Among the firmer articles are star anise oil, cassia, Ceylon citronella and clove oil. Bois de rose

oil, cassia, Ceylon citronella and clove oil. Bots de rose is again easier, lemon oil is quieter and cheaper; Japanese mint is the turn easier; Cochin lemongrass has declined.

Anise (Star).—"Red Ship" on the spot has been sold at 3s. per 1b.; holders are inclined to increase prices to 3s. 0½d. and 3s. 1d. Limited supplies are still offered in other directions at 3s. An offer of drums at 2s. 10d.

c.i.f. has been current during the week.

BERGAMOT has been in active demand with spot sales reported up to 17s. 3d. and 17s. 6d. per lb. for 37 to 39 l.a. Holders now ask from 17s. 6d. to 19s. 6d. per lb. as to brand, but small lots may still be found at less. Forward prices range from 19s. 6d. to 20s. c.i.f., and in one direction 22s. 6d.

Bois de Rose (femelle) is cheaper on the spot at

from 12s. to 12s. 6d. per lb. as to quantity.

CAJUPUT on the spot is weak at 2s. 10d. per lb.

CARAWAY.—Dutch double rectified is offered on the

spot at 7s. 6d. per lb. Cassia is firm on the spot with sellens of 80 to 85 c.a. at 8s. 9d. to 9s. per lb.

CINNAMON.—Sales of Ceylon leaf are reported at 5s. per

lb. c.i.f.

CITRONELLA.—Ceylon is slightly better after a small demand, 1s. $10\frac{1}{2}$ d. per lb. c.i.f. being now quoted. Spot is steady at 2s. 2d. Java oil is unchanged at 3s. 9d. spot and 3s. $7\frac{1}{2}$ d. c.i.f.

CLOVE.—English distilled is firmer at from 6s. 9d. to

7s. per lb. for 90 to 92 per cent. eugenol.

Geranium.—Bourbon on the spot is unchanged at about 15s. 6d. per lb. Quotations from Reunion after a decline have come firmer at 160 fr. per kilo c.i.f. (= 14s. per lb. approx.). Algerian is cheaper at from 17s. to 17s. 6d., and forward offers have been made at about 160 fr. per kilo c.i.f.

JUNIPER BERRY.—B.P. oil on the spot is steady at

6s. 6d. per lb.

LAVENDER.—The first samples of new crop French oil have now arrived in London, and sellers' ideas of value for 38 to 40 per cent. are about 240 fr. to 250 fr. per kilo (= 21s. 6d. to 22s. 6d. per lb. approx.). It is doubtful, however, in view of the reports of a good yield, whether sales will be made at the price. Old crop oil, 38-40 per cent., has been selling at cheaper rates; current spot values are given at from 24s. to 25s., and 36 per cent. at 21s.

LEMON.—Forward prices are steady at from 5s. 6d. to of the spot there is an easier tendency at 4s. 9d. to 5s.

Lemongrass.—Cochin is weaker on the spot at 3s. 11d.

per lb. and 3s. 7d. c.i.f. for shipment.

Mandarin has been in good demand on the spot, and is firmer at from 25s, to 25s, 6d, per lb.

Mint.—Japanese dementholised Kobayashi-Suzuki is easier on the spot with sellers at 16s. 9d. to 17s. per lb. For September-October shipment, 14s, 6d. c.i.f. is quoted; October-December, 13s. 6d.; January-March, 12s. 6d.
Patchoull.—Penang oil is quoted on the spot at from

13s. 6d. per lb.

PENNYROYAL .- Spanish is firm on the spot with sellers at from 7s. 6d. to 7s. 9d. per lb.

PEPPERMINT.—American natural tin oil is nominal at from 80s, to 85s, per lb. on the spot, with practically no business passing. It is still difficult to follow new crop. We understand that \$13.00 has been paid to buy out contractors for new crop oil who originally purchased at \$5.50. It is difficult to see how this price will be justified. There have been plentiful rains and the prospects of the crop are improving daily. It is possible also that supplies will come on the market much earlier than was first reported. Given a reasonable crop, it is practically impossible for speculators to hold up prices against dealers and consumers.

Petitgrain.—Paraguayan is unchanged with sellers on

the spot at 8s. 6d. per lb. in cases.

SPEARMINT.—American is firm on the basis of \$8.50 per lb. (= approx. 35s.). Second-hand sellers on the spot can still shade this.

SPIKE.—French oil is offered at 7s. 3d. per lb. net, ex

France, delivered.

WORMSEED.—American is dearer to arrive at 16s. 3d. per lb. c.i.f., following tentative offers at higher rates.

The following arrivals have taken place from the countries named during the period July 23 to 29 inclusive:—Bergamot (It.), 40 cs.; camphor (U.S.), 7 cs., 2 dm.; cassia (Jp.), 35 cs.; citron (Germ.), 5 dm.; citronella (Jv.), 12 dm.; elove (Germ.), 4 cs. eucalyptus (Aust.) 25 cs., (Sp.) 3 dm.; geranium (Réun.) 2 dm., (Alg.) 1 dm.; lemon (Fr.) 16 cs., (It.) 128 cs. mint (Jp.), 20 cs.; peppermint (U.S.), 1 cs.; petitgrain (Parag.), 10 cs.; pimento (B.W.I.), 1 pkg., 10 cs.; rosemary (Fr.), 2 pkgs.; sage (Sp.), 1 dm.; sandalwood (Brit. Ind.), 17 cs.

Pharmaceutical Chemicals, etc.

KEEN competition continues a feature, and in many instances actual sale prices for large business would be something under the quoted values given below. Salicylates are subject to very keen competition between home makers, and owing to lack of demand it is generally possible for a buyer to get under the market level.

ACETANILIDE has weakened, and is now quoted down to 1s. 5½d. to 1s. 6d. per lb. The market is unsettled

with quotations very irregular.

AMIDOPYRIN is rather cheaper on a weak market, with some dealers' prices about 13s. 6d. and a shade less for

quantities.

ASPIRIN is one of the few steady and fairly active items, with prices maintained at 2s. 7d. to 2s. 8d. per lb., according to quantity.

BARBITONE shows further weakness, with dealers' prices now at about 10s. 9d. per lb., and slightly less for quan-

tity; business remains dull.

Benzaldehyde (.03) continues dull with dealers' prices

easy as quoted at about 3s. per lb.

Benzoic acid (B.P. practically f.f.c.) holds firm, with little offering under 2s. 11d. per lb.

BENZONAPHTHOL is not attracting much business with prices still at about 3s. 3d. to 3s. 6d. per lb.

BETANAPHTHOL—Resublimed is about 2s. 9d. to 3s. per

lb. with business quiet and the market easy.

Bromides.—There is no change in quoted prices, but the tone is perhaps not so firm as hitherto: Ammonium, about 2s. 6d. per lb.; potassium, B.P. crystals and granular, about 1s. 11d per lb.; sodium, B.P. crystals and granular, about 2s. 2d. per lb.

CALCIUM LACTATE is steady with fair business being done; large parcels are about 1s. 7d. per lb., and smaller

lots from 1s. 8d. to 1s. $8\frac{1}{2}$ d. per lb.

CHLORAL HYDRATE.—Prices are steadily maintained at about 3s. 5d. to 3s. 6d. per lb., duty paid, according to

quantity, with fair business on the market.

CITRIC ACID is irregular and certainly easier with business difficult. Quotations from dealers are still at about 1s. 4d. to 1s. 4dd. per lb., less 5 per cent. for B.P. crystals, but something less might be accepted for good

CREOSOTE (B.P.) shows no change at 2s. 1d. to 2s. 2d.

per lb.; market is rather quiet.

CREOSOTE CARBONATE remains dull with dealers offering small lots in bottles at 6s. 6d. to 6s. 9d. per lb.

GUAIACOL CARBONATE remains dull with dealers' prices

from 6s. 9d. to 7s. per lb.

HEXAMINE.—Actual sales prices for quantities have been cut, and the tone remains weak and unsettled; quoted from 2s. 41d. to 2s. 6d. per lb., according to quantity.

HYDROQUINONE is one of the firm items, and prices, so far as dealers are concerned, are tending higher at 4s. 4d. to 4s. 5d. per lb.

LACTIC ACID (B.P.) continues to be offered on a quiet

market at about 2s. 6d. per lb.

METHYL SALICYLATE.—Quotations for quantities are being cut, and have been slightly under 1s. 5d. per lb., with 1s. $4\frac{1}{2}$ d. per lb. as the lowest recorded. Dealers are not able to compete at this figure.

METHYL SULPHONAL is cheaper again this week, with dealers offering at about 17s. 6d. per lb.; market remains

MILK SUGAR.—Dealers' prices continue at 75s. to 76s.

per cwt., according to quantity.

Paraformaldehyde (100 per cent. powder) is very irregular, and quoted prices in the region of 1s. 9d. per lb. are little guide as to the actual sale prices.

Paraldehyde is fairly steady at from 1s. 13d. to 1s. 4d.

per lb., according to quantity and packing.

PHENACETIN.—Spot prices on quotation remain at 4s. 3d. to 4s. 6d. per lb., according to quantity, but slightly cheaper rates might be taken.

PHENAZONE, although still rather quiet, is maintained at about 6s. 3d. to 6s. 4d. results.

at about 6s. 3d. to 6s. 4d. per lb

Phenolphthalein continues unsettled with prices persistently falling, and it is uncertain when bottom will be reached. Quotations are no guide to actual selling prices if any business has been done. Quoted at about 4s. 1d. to 4s. 2d. per lb.

Potassium permanganate (B.P.) is steady with 7³/₄d. per

lb. in drums and a little more for small lots.

RESORCIN.—Quotations from less than 4s. up to 4s. 9d. per lb. reflect the state of this item. Business is difficult and prices are a matter of negotiation.

SALICYLIC ACID (B.P.).—Competition continues very keen and dealers are out of the market. British in quantities has been quoted from 1s. 2½d, per lb., and it is understood that 1s. 2d, might be taken for good business. It is difficult to appreciate the reason for the continual fall in prices with Continental competition

eliminated at a much higher price. SALOL continues to be offered in quantities at about 3s. 3d. to 3s. 4d. per lb.; market quiet.

SODIUM BENZOATE (B.P.) continues steady close up to

1s. 11d. to 2s. per lb.

SODIUM SALICYLATE.—Drastic cuts in prices were made by British makers at the end of last week, and Continental is out of the market. B.P. powder in large lots from 1s. 10d. to 1s. 11d. per lb. at works naked. Crystals from 2s. to 2s. 2d. per lb., naked at works. The packing, tin-lined cases, would work out at nearly 1d. per lb.

SODIUM SULPHITE—Applydrous is offered at from

Sodium sulphite.—Anhydrous is offered at from £27 10s. to £28 10s. per ton, according to quantity, one-

cwt. kegs included.

Sulphonal, on a dull market, is easy as quoted at about 12s, 6d. per lb.
TANNIC ACID.—B.P. leviss from dealers shows no

change with spot prices about 2s, 9d, per lb.

Tartaric acid is rather quieter and quoted prices would be difficult to obtain. Dealers offer B.P. crystals at about 113d. per lb., less 5 per cent., with most business of any importance based on a shade lower level.

TERPIN HYDRATE is unchanged with dealers quoting at

1s. 7½d. to 1s. 9d. per lb., as to quantity.

THYMOL shows further weakness with dealers' prices for quantities down to 13s. 6d. to 14s. per lb. for small lots.

VANILIN.—There is no further change to record here with British makers' and dealers' prices down to about 21s. 6d. to 22s. per lb., as to quantity, for 100 per cent. pure.

The following are makers' prices (per lb., unless otherwise quoted):—Acid, camphoric, 21s. to 19s.: iron ammonium citrate: B.P., 1s. 11d. to 1s. 8d.; U.S.P., 1s. 10d. to 1s. 7d.; green, 2s. 7d, to 2s. 2d.; mercurials. red oxide, 5s. 4d. to 5s. 2d.; corrosive sublimate, 3s. 9d. to 3s. 7d.; white precipitate, 4s. 8d. to 4s. 6d.; calomel, 4s: to 3s. 10d.; potassium citrate, 1s. 10d. to 1s. 7d.; sodium citrate, B.P.C. 1911, 1s. 7d. to 1s. 4d.; U.S.P. ditto, 1s. 10d. to 1s. 7d.; sodium nitroprusside, 16s.; sodium sulphide, pure recryst., 1s. 2d. to 10d.; ether, 720, 1s. 6½d. to 1s. 1½d.; ether, 720 purif., ex s.v.m., 2s. 3d. to 1s. 11d.; potassium acetate, 1s. 4d. to 1s. 1d.; terebene, 2s. 3d. to 2s.; acid phosphorie,

sp. gr. 1.750, 1s. 1d. to 11d.: cadmium sulphate, pure, 4s. 3d. to 4s. per lb. Bismuth salts: carbonate, 14s. 9d. to 12s. 9d.: submitrate, 12s. 9d. to 10s. 9d.; citrate, 13s. 4d. to 11s. 4d.; salicylate, 12s. 2d. to 10s. 2d. per lb.

Among the chemicals which have paid Key Industry Daty are the following: Hexamine, £358; isopropyl alcohol, £187; potassium bromide gran., £153; undescribed chemicals, £1,452.

Industrial Chemicals, etc.

London, July 30.

THE volume of business continues limited. due, no doubt to some extent to the unsettled industrial conditions and threatened lock-outs. Prices, however, are fairly well maintained, and keen competition is noticeable. The reduction recorded last week in caustic potash appears to be due to competition with German make, and not to any lower cest of production.

ACETIC ACID.—Business continues very poor, but prices at Acetic acid.—Business continues very poor, but prices at their recent lower levels are fairly steady: 80 per cent. technical, £39; 80 per cent. pure, £39 per ton, in barrels; 99/100 per cent. glacial, pharmaceutical, £66 per ton, in glass demijohns, ex wharf; glacial, in barrels, £55 per ton. ACETONE.—Owing to limited supplies, prices are close up

to £75 per ton, in drums.

ALUM is available on spot at about £9 5s. to £9 7s. 6d.

AMMONIA (ANHYDROUS).—There has been continued good business in small lots on spot and for near delivery, with prices close up to 1s. 4d. per lb. for 99.95 per cent., in loaned cylinders.

AMMONIUM CHLORIDE (grey galvanising) has been moving on spot fairly well, with prices at about £26 per ton, in

casks.

ARSENIC remains very depressed, the demand in America being practically at a standstill, and if this continues buyers may succeed in securing further concessions. Offers have been reported of Cornish down to as low as £20 per ton, f.o.r., at the mines.

Baryres continue steady at from £3 5s. to £6 per ton, c.i.f., according to quality for meterial to come forward

BLEACHING POWDER is very quiet, with dealers quoting about £9 7s, 6d. per ton for 35 to 37 per cent. available

COPPER SULPHATE.—Business for export has ocen exceedingly slow, and f.o.b. quotations are about £24 10s. to £25 per ton for casks, less 5 per cent.

CREAM OF TARTAR is steady, B.P. powder offering at from

76s. to 77s. per cwt.

Erson salt shows no change, with the market subdued, Commercial quality on spot is offered at £4 7s 6d, to £4 10s, per ton, in bags.

FORMALDEHYDE is still one of the dullest items in the market, and dealers' prices of £38 to £39 per ton for 40 per cent. by volume do not attract much business: the lower price is for quantities.
GLAUBER'S SALT is st

GLAUBER'S SALT is steady, but in little request. Commercial quality, in single bags, spot, is about £3 12s. 6d.

per ton.

LEAD PRODUCTS.—With higher prices for metal, dealers' prices for Continental materials have advanced: red lead, £42; white lead, dry, £41; ground in oil, £43 per ton, c.i.f. London. The market is firm at these rates. In the recent revision, apart from the advance already reported for lead oxides last week of £1 a ton. a similar move was made in the case of British white lead, both for the home trade and export. The home trade quotation for white lead in oil was fixed at £52 15s., and for dry white lead at £51 for lots under 5 tons, while the export price f.o.b. was fixed at £43 and £47 15s. respectively.

OXALIC ACID remains particularly quiet, and prices are

Oxalic acid remains particularly quiet, and prices are inclined to be irregular and cheap to effect sales: in quan-

Hitties, 3½d, to 3¾d, per lb.

Potash Caustic.—With competition on the market against

Potash causic.—With competition on the market against German make, dealers quote at about £29 to £29 5s. per ton for 88/92 per cent, solid, in drums, spot.

Potassium carbonate is steady, with fair business being done: 90 to 92 per cent., £24; 96, to 98 per cent., £26 per ton, in casks, spot; slightly less to come forward.

POTASSIUM CHLORATE is steady, with imported quoted at about 3\(\frac{1}{2}\)d. per lb. for quantities; business fair.

POTASSIUM PERMANGANATE has been moving fairly well. with prices steady at 6d. per lb. for quantities of commercial quality in drums.

POTASSIUM PRUSSIATE is steady at 74d. per lb. for yellow

on spot.

SAL AMMONIAC.—Dealers' prices are unchanged, with a fair business being done: dog-tooth crystals. £33 10s.; medium, about £31; fine white crystals, about £22 per ton, in casks, on spot.

SALTCAKE for home trade is offered at £3 10s. to £3 15s. per ton, delivered in bulk.

SODIUM ACETATE continues dull, and prices show a further decline at about £18 12s. 6d. per ton. Market irregular on quotation.

SODIUM CHLORATE on spot is steady at about 3d. to 3dd.

per lb., according to quantity.

SODIUM HYPOSULPHITE.—Dealers' prices continue to attract some business. Pea crystals (photographic), £13 10s, per ton, in one-cwt. kegs; commercial quality, £9 to £9 5s, per ton, in casks. British makers quote £14 to £15 per ton, according to quantity, delivered to buyer's station.

Sodium Nitrate is slow of sale and prices easier: 95 per cent. £12 7s. 6d.; refined, £12 12s. 6d. per ton, f.c.r. docks,

SODIUM NITRITE (100 per cent. basis) is steadier,

still quiet, at about £23 5s. per ton, docks. London.

SODIUM PRUSSIATE is steady, but business is quiet. British is quoted at about 4d. per lb.

SODIUM SULPHIDE remains dull, but the recently lowered values are steady: 60 to 62 per cent. solid. £12 5s.: solid. £13 5s. per ton, in drums, to come forward.

Coal-tar products. Etc.—No actual change in quoted values is recorded, but some items, such as carbolic acid crystals, remain dull and unsteady. Aniline oil is offered by dealers on a dull market at about 7d, to 7½d, per lb., carriage paid, in loaned cylinders. Aniline Salt from British makers is unchanged at 7½d, per lb., naked, at works; market dull. Betanaphthol is still neglected, with prices round about 1½d, to 1s, per lb. Toluol is steady, with business being done: pure, 1s, 9½d, to 2s, per gallon; 90's 1s, 6½d, per gallon, Xylol has again been idle with prices nomingl: pure 3s, 3d; commercial, 2s, 3d, per gallon, Creosote oil is still subdued, but, so far, prices are maintained: ex works, 5½d, per gallon, and about 6½d, per gallon, f.o.b., in bulk packing. Carbolic acid crystals remain flat, and prices are barely maintained at 4½d, to 4½d, per lb., in bulk quantities. Cresylle acid at 4½d, to 4½d, per gallon. Naphthalene remains very quiet and prices are irregular for flakes and crystals at from £14 to £15 per ton. Pale, 95 per cent., 1s, 5d, to 1s, 6d, per gallon: dark, 1s, 2d, to 1s, 3d, per gallon. Pure Methyl according to the solution of the per gallon. Pure Methyl according to the per gallon. Pure Methyl according to the per gallon and prices are steady as quoted by dealers at £47 per ton. COAL-TAR PRODUCTS, ETC.—No actual change in and prices are steady as quoted by dealers at £47 per ton, in drums, Pyriddine is quiet, and dealers' prices are unchanged at about 18s, 6d, to 19s, 6d, per gallon, Pirch.—Business of importance is lacking here, and the market quotation at 40s, 6d, per ton, f.o.b, East Coast, is nominal.

Fixed Oils, etc.

RATHER better business is reported, and some items show higher prices. Castor, coconut and linseed oils remain quiet. Cotton, palm kernel, palm and soya bean oils are firm at better prices. American turpentine is dearer on a more active market. ACID OILS,—Market steady, with fair business: coeonut and palm kernel, 40s. 6d.; groundnut, 57s. 6d.; soya, 34s. 6d., all spot. CASTOR—Market still flat with cheap re-sellers: pharmaceutical. 61s. 6d.; first pressings, 56s. 6d.; second pressings, 54s. 6d., all spot, in barrels, in not less than one-ton lots. French medicinal water-white, in barrels, is offered at 66s, per cwt., and cases 69s. 6d., ex wharf London. Coconut is quieter, but prices are unchanged and business fair: deodorised, 53s.; common edible, 51s.; soap-making, 49s.; crude, 44s. 6d., all spot. Groundnut is firmer and more active: deodorised, spot, 57s. 6d.; crude Oriental, 52s., c.i.f. PALM KERNEL is firm at higher rates: deodcrised, 51s.; crude, 46s., all spot. PALM.—Business has been good and prices are fully maintained on a firm market; Lagos, 41s. 9d.; softs, 41s. 9d.; mediums, 41s. 6d.; hards, 41s. 6d.; bleached, 44s., all spot. RAPE is quiet at about level prices on the week: refined, 54s. 6d.; crude 51s. 6d.; engles on the week: refined, 54s. 6d.; crude 51s. 6d.; engles on the seek: refined, 54s. 6d.; crude 51s. 6d.; engles on the seek: refined, 54s. 6d.; crude 51s. 6d.; engles on the seek: refined, 54s. 6d.; crude 51s. 6d.; engles on the seek: refined, 54s. 6d.; crude 51s. 6d.; engles on the seek: refined, 54s. 6d.; crude 51s. 6d.; engles on the seek. higher prices. Castor, coconut and linseed oils remain quiet. mediums, 44s, 6d.; hards, 41s, 6d.; bleached, 44s., all spot, RAPE is quiet at about level prices on the week: refine!, 54s, 6d.; crude, 51s, 6d., all spot Sova is higher on a firm market: deodorised, 49s, 6d.; crude, 45s., all spot. Linger (raw, naked) has had a quiet week, and prices are slightly cheaper. On spot, 44s, 6d.; August, 40s, 6d.; September-December, 40s, 9d.; January-April, 40s.; boiled oil, spot, 45s, 3d. Hull, on spot, 44s.; August, 40s, 9d.; September-December, 40s, 1½d. Turpentine.—There has been a fair home trade demand, while the market has been steadied to some extent by the firmer feeling in the American Southern markets. The quotation at Savannah moved up to 90% cents, and the receipts from the interior American Southern markets. The quotation at Savannah moved up to 90½ cents, and the receipts from the interior have been well absorbed. There was a set-back in the London have been well absorbed. There was a set-back in the London deliveries last week, the total amounting to 1,565 barrels, which makes an aggregate for the year to date of 55.157 barrels, this comparing with 56,792 barrels at the same date last year. The stocks have been increased to 23.131 barrels, against 10,592 barrels a year ago. On the other hand, the quantities afloat, amounting to 4,950 barrels, make the visible supply 28,031 barrels, this comparing with 26,242 barrels at the same date last year. There is now a premium of about 3s, per cwt. current for January-April contracts.

Market on spot closes at 67s. 6d.: August, 67s. 6d.: September-December, 68s. 9d. Total London stocks are 22,600 barrels. Wood.—Hankow, in barrels, on spot remains

quiet at 60s. per cwt.

quiet at 60s. per cwt.

Lubricating, Mineral, Burning oils, etc.—Conditions show little change on the weck. Prices quoted are about the same, but business of importance is lacking in most directions. Benzol continues steady, with business good. Crude 65's, 1s. 3d.; standard motor, 1s. 8d.; pure, about 1s. 11d. per gallon, ex works, in tank wagons. Fuel oil is quiet and prices unaltered: 950 gravity, £4 2s. 6d.; 890 gravity, £4 17s. 6d. per ton, ex tank. Paraffin wax and scale are steady, with business fair: wax, 3d. to 5d. per lb., according to melting point, in bags; scale, 25s. 9d. to 27s. per cwt., c.i.f. U.K. port. Paraffin oils are unchanged and steady. American standard white, 1s.; water white, 1s. 1d. per gallon, barrels free; Russian prime white kerosene, 6½d. to 7d. ex tank; 7¼d. buyers' barrels, free, and 10¾d. per gallon barrels free ex wharf, London. White oils are quiet and quoted values easy: special No. 1, £29: No. 1, £27; No. 2, £25; No. 3 half-white, £24; No. 4 half-white, £18 per ton, drums and barrels free, ex wharf, London. Petroleeun belles.—Conditions remain flat, market easy: white to snow white, £55 to £60; amber and yellow, £22; red vet, £19 10s.; dark stiff green, about £16 7s. 6d. per ton, drums and barrels free, ex wharf, London. Solvent naphthas meet with fair business at steady prices: 90 to 160, 1s. 4d. to 1s. 4½d. per gallon; heavy, 90/190, 1s. to 1s. 1d. per gallon. Lubricating oils.—The spot market remains quiet; there is no change in quoted values, but a slight reductino is possible: pales. £11 10s. to £23 10s.; reds, £13 10s. to £23 filtered cylinders, £21 5s. to £35 per ton, less 2½ per cent., ex wharf, London. Solvent naphthas according to grade. No. 1 Russian oil unchanged at £18 5s. per ton, less 2½ per cent., ex wharf. LUBRICATING, MINERAL, BURNING OILS, ETC.—Conditions show

The Superphosphate Inquiry

Two reports have been issued by the members of the Committee appointed to enquire into and report upon the application made by the Fertiliser Manufacturers' Associaapplication made by the Ferniser Manufacturers Associa-tion (Ltd.), in accordance with the terms of the Government's White Paper of February 3 last, for the imposition of a duty on superphosphate. Sir Arthur Whinney, K.B.E., the chairman, in his report gives the reasons for his opinion that the applicants had established their case for a duty. that the applicants had established their case for a duty. In his view foreign competition could be met under the existing circumstances by the imposition of a countervalling duty of 7s, 6d, per ton, and suggest that such a duty be imposed for two years. On the other hand, the members of the Committee apart from the chairman (Sir Henry Rew, K.C.B., and Mr. Arthur Hollins, J.P.). dissented from the conclusion of the chairman, and held that, having regard to all the conditions, the applicants had failed to establish a claim to a duty. failed to establish a claim to a duty.

Java Citronella Oil

In a recent report on Java citronella oil, the U.S. Bureau of Foreign and Domestie Commerce, Washington, states that: According to a local journal, considerable attention has of late been devoted to the cultivation of "sereh" grass. This is noticeable principally among the Chinese, Arabs, and the natives, who have closed important contracts for 1925 and 1926 deliveries for the greater part without anything under cultivation, although distilling installations had already been ordered and in some cases received. Even those whose plantations are already in production, the journal further states, will experience difficulty in the fulfilment of their contracts, as they have sold much more than their plantations can produce. The fact has been overlooked that areas planted during the beginning of the East monsoon cannot be productive, while the existing plants will be badly affected by the yield of the material required for the growth of the younger plants. Furthermore, there is a desire among both the Chinese and the natives to overestimate the grass production as well as the percentage of oil. Many are inclined to consider 6 per cent. a safe figure, but they may congratulate themselves if in practice this amounts to 3 per eent. Further, should the grass production amount to but half the estimate, it will then be a simple matter to calculate what an enormous shortage can be expected in the production of the oil. Considerable difficulties will undoubtedly be experienced by these contractors in meeting deliveries. and bona-fide exporters are advised to exercise care in their transactions. Considerable difficulties will undoubtedly be experienced by these contractors in meeting deliveries, and bona-fide exporters are advised to exercise care in their transactions, as in a case of difficulty in the fulfilment of their contracts owing to shortage of supplies or a deflected market, these contractors will endeavour to evade their obligations and leave the broker and exporter to meet the losses. Exports from Java and Madura during January and February 1925 totalled 128,577 kilos, against 80,255 kilos in 1914.



Letters for this section should be written on one side of the paper only. Correspondents may adopt an assumed name for purposes of publication, but must in all cases furnish their real name and address to the Editor.

"The Penny Ticket"

Sir.—When "Grandfather Kruschen" (C. & D., July 25, p. 147) rushes into print he should endeavour to write in a way that cannot be misunderstood. Many of your subscribers were under the impression, after reading his epistle, that I was the guilty party. This I entirely repudiate, as I have never had anything to do with penny tickets.—Yours faithfully,

A. R. Keith.

[Mr. Keith is President of the Proprietary Articles Trade Association, and "Grandfather Kruschen" called upon him to take action in the case of a member of the Executive of that body who appeared to be giving discounts on P.A.T.A. articles.—Editor.]

Panel Chemists' Difficulties

SIR,—Mr. Melhuish and Mr. Mallinson, in their evidence before the Royal Commission on National Insurance, referred to the vexed question of surgery hours and the chemists' closing hours;, but from the reports I have read I cannot find that they touched on the real cause of the trouble. Half the complaints we hear of are due to the want of punctuality on the part of the doctor; the hours of attendance are published, but insured persons frequently sit waiting in the surgeries for an hour or so before being attended to, and then, when eventually they arrive at the chemist's with their prescriptions, find the pharmacy closed. The facts could be easily ascertained if the Insurance Committee were to send round, say, half an hour after opening time and see whether there was anyone in attendance. Of course, the answer would be that the doctor was out at a private case; but if a chemist was not on duty at his pharmacy to dispense prescriptions during the advertised hours he would soon be called up by the Committee. Chemists hear plenty of complaints from insured persons about this waiting in surgeries, but it never seems to get to the ears of the Committees.—Faithfully yours, Waiter (20/7).

SIR,-Mr. J. Rutherford Hill gave a striking account of the differences between pharmacy in Scotland and in England when appearing on behalf of chemists before the Royal Commission (C. & D., July 18, p. 89), and it was not by any means flattering to English pharmacy. There is a deal of unpalatable truth in many of his There is a deal of unpalatable truth in many of his remarks; for instance, the comparison of dispensing with a new toy which the English pharmacist was pleased to get for nothing; he is still getting it for nothing and getting nothing for it. Mr. Hill's suggestion that all proprietary remedies should be banned will be endorsed by all panel chemists, and it would be to the interest of the patients as well. Another good point was the remark that Scottish chemists fail to understand the meaning of "commercial" in the term "commercial tariff"; no business man could find anything commercial in a system which condemns him to invest his capital without interest or return on it and to invest his capital without interest or return on it, and to pay all incidental losses of waste out of his own pocket. Scottish chemists would have none of it, and English chemists must be very sorry that they were foolish enough to accept it. I doubt, however, whether any English chemist would be willing to grant a doctor a percentage on consideration of sending his scripts to a particular pharmacy; there is not enough in it for that sort of thing.—Yours truly, Southron (18/7)

Appreciations

I consider the C. d. D. the finest investment the pharmacist can make, the Commercial Compendium alone being worth the modest sum asked.—H. O. (25/2).

Legal Queries

- A. E. L. (17/7).—" Corn Plasters" and "Corn and Wart Solvent" are titles which render the articles to which they are attached liable to medicine-stamp duty.
- T. A. (6/7).—Your employer is entitled to a month's notice of your intention to leave his employment. This is a trade custom, and does not depend upon the frequency of payment. By arrangement he may accept a shorter notice.
- A. A. C. (16/7).-Apprenticeship indentures are not nccessary for persons entering pharmacy at the present time, but they will be compulsory after July 1, 1926. It is wise, however, to adopt such indentures now for all apprentices after registration.
- J. S. (23/7), who has been in his present business since 1908, has paid income tax each year since 1917, the first year in which he was called upon to pay. He now wants to know if the Commissioners can call upon him to pay for the years prior to 1917. [It is assumed that "J. S." was not called upon to make a return and in fact made no return for the years prior to 1917. If that he so he cannot now he called upon to 1917. If that be so, he cannot now be called upon to pay in respect of any year before the tax year 1920-21.1

Amser Gynt (22/7) asks if a widow over seventy who has a relative dependent on her and has an income, all from investments, of £256 15s. per annum, £14 10s. of which is untaxed at source, can claim the earned income relief, as per Budget of April, 1925, and, if so, what is the total due to her to June 30, and how is the amount made up? She claims repayment of the tax twice a year, in June and December. [Yes, But of course this amplies to the present tax wear commencing tax twice a year, in June and December. [Yes. But of course this applies to the present tax-year commencing April 6, 1925, not to last year in respect of which she may now be making a claim for repayment. Her position for current tax year is: Total income £256 15s., less one-sixth under Section 15 of Finance Act, 1925, leaving £214 2s., from which have to be deducted the personal allowance £135 and allowance for dependent relative £25, in all £160, leaving a taxable amount of £54 2s., on which the tax at 2s. in the £ is £5 8s. 2d. The tax which she will have paid this year on £242 5s. at 4s. in the £ will be £48 9s., so that she will be entitled to claim repayment of £43 0s. 10d. on the whole year.] whole year.]

Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

W, S. (3/7),—Large-scale photographic developing. -The following is an all-round stock developer for this purpose :-

Metol ... 16 oz. ... 24 lb. Hydroquinone ... Sodium sulphite ... Sodium carbonate ... Pyrogallol ... ••• ••• 16 lb. ... 15 lb. To make stock solution, 10 gallons.

Two gallors of the above stock solution are taken and sufficient water added to fill the tank of 45 gallons. A tank full of solution will last about two weeks, assuming that 480 spools per day are developed, and that after every batch of twelve rods of spools developed, 12 ozs. of stock solution are added to the solution in the tank and well mixed with it. Never add fresh stock while films are in the solution or markings will appear. The developer may be any standard solution that the worker prefers. The solution should not be allowed to fall below 65° F., and at this temperature development will be complete in twenty minutes.

B. B. (4/7).—"Black drop" as a colour in the formula for solid cosmetic is a fine variety of lamp black ground in oil.

J. G. (6/7)—TREFLE PERFUME.—The following is the formula you require :--

Amyl salicylate Bergamot oil, Lavender oil. Cananga oil, of each Orange blossom triple extract ... Cassia triple extract 40
 Oak moss resin
 1

 Clary sage oil
 2

 Jasmin triple extract
 250

 Tubegose triple extract
 500

D. W. (11/7).—OXIDISING COPPER.—The following are the solutions used for oxidising copper :-

-1 Copper acetate ... 300 grains 200 grains ... 50 oz. Copper sulphate Water

Boil the solution and immerse the copper article iu the cold solution.

 Π Barium sulphide 2.5 grains Water 20 oz.

Immerse the copper article in the solution, which acts slowly when cold.

For producing a blue-green patina the following is

Ammonium carbonate ... 1,163 grains Sodium chloride 380 grains ... 460 grains Copper acetate ... Cream of tartar ... , 380 grains 16 fl. oz. ...

E. E. R. (13/7).—BORAX AS A WATER-SOFTENER.—The quantity of borax to use for the purpose of softening water is empirical, as it does not exert a chemical effect on the hardening components of the water. Two teaspoonfuls in the washing ewer of water is usual. Borax, being neutral, has no action on glass.

H, M. (20/7).—AMYL NITRAS is not now used in medicine. It is fairly certain that amyl nitrite is intended by the prescriber, which can be judged by the dose and directions for use.

M. T. A. H. (20/7).—Examination syllabus.—Part I of the Qualifying examination, now called the "Preliminary Scientific," has undergone no change in the subjects or scope. In botany there is an appearance of change, but when this is examined it means the elimination of some out-of-date material. There is a change in fees, but you will be able to get the concession of \$\frac{\partial 23}{23}\$ to include both meliminary scientific and the £12 12s., to include both preliminary, scientific and the qualifying portion, if you enter before August 1, 1929. The term acid radicles in the syllabus includes those you mention, salicylates, citrates, etc.

Retrospect of Fifty Years Ago

Reprinted from "The Chemist and Druggist," August 15, 1875 A Representative Pharmacist

From a biography of Mr. G. H. Schacht

From a biography of Mr. G. H. Schacht

The subject of our notice is a representative man at this moment in duplicate aspects—first, as one of the worthiest representatives of Bristol pharmacy (this is the verdict of Bristol itself); and secondly, as one of the chief officers of the British Pharmaccutical Conference. He was one of the founders of that body, has held office as treasurer since 1870, and has ever been among its most ardent friends. At home he is President of the Bristol Pharmaceutical Association, and has holped to show how easy it is to solve the troublesome problem of provincial pharmaceutical education. But on this point Mr. Schacht's enthusiasm runs away with some of his judgment. He has patiently fought a losing battle for years against the apathy, the vis inertia, and the selfishness of pharmaceutists, in his earnest desire to promote a sound system of technical education available to all youths entering the business in every part of the country. But others with desires similar to his own see clearer than he does that the schemes he has suggested require for success some such men as Schacht and Stoddart in every town where they are to be applied, and in our generation at least that provision is not destined to be frequently realised.



[Commenced C. & D., July 5, 1924]

Coffee.—The bulk of the world's supply of coffee is furnished by the seed of Coffea arabica, or Arabian coffee plant, a small tree native of tropical Africa, and cultivated extensively in Brazil, West Indies, South India, Costa Rica, Java, ctc. Before coffee is ready to be exported it undergoes pulping, fermenting, washing, drying, and hulling. As received from the estate, the coffee cherries go into receiving tanks filled with water, where lights and cherries dried on the tree are floated off for separate treatment; they then pass to the pulping machines, where by the action of a rough revolving cylinder the outer layer is converted into pulp. The pulp is separated from the seeds by mechanical stirring in another vat or tank, and the seeds—still covered with their parchment and the slimy layer of gummy substance—go next to the fermenting tanks. From the fermenting tanks are the table to the fermenting tanks. fermenting tanks the coffee passes to the washing channels, where they are cleansed in running water, but the latest method is to employ a coffee washing machine, which is fed automatically from the washing tasks. Drying takes place on barbecues (stone floors) exposed to the sun, or on trays, where there are also mechanical driers. The dried beans are now known as "parchment coffee." The final operations of hulling or "cleaning" (removing the parchment and the "silverskin ") and grading are carried out by means of hulling and grading machines, usually in a central factory serving numerous estates in the same neighbourhood; sometimes this operation is done at the port of shipment or the country of destination. There is often considerable advantage in sending coffee to London in the parchment, as the London wharfingers grade according to the needs of the markets. London largely undertakes the arbitra-tion on coffee contracts, even though they are made between countries of production and Continental ports; this is mainly due to the efforts of the Coffee Trade Association of London (founded in 1916). Coffee is graded according to the size of the bean, i.e., elephants (overgrown berries); A, bold; B, mediums; C, thirds; triage and chips (berries broken in cleaning), and pea berry. The last-named is in some cases divided into bold, medium and small. The procedure with coffee which has been "foreign cleaned" and "foreign graded" is first of all to sort the marks; the bags are then opened and inspected by the wharfingers and placed to their correct piles according to quality, etc., and then bulked. Bulking, it will be seen, is the regular practice, whether grading has been done at the source or not. After bulking, samples representative of the whole are taken hy the wharfingers or the Port of London Authority, and the coffee is refilled into bags, which are weighed at this stage for the Customs authorities. An allowance is made by the Customs to account for the weight of samples drawn. "Lotting accounts," together with the samples, are then sent to the brokers for the preparation of auction sale catalogues. The samples are exhibited in the brokers' sale rooms in Mincing Lane prior to the auction, and small samples in the wharfingers' own papers as guarantee of authenticity are given to the wholesale buyers, who roast and liquor them and buy on their opinion. As will have been gathered, the grading of coffee by the wharfingers is primarily a matter of sizes and bulking of similar descriptions, leaving the quality of each lot still a matter to be decided on by the buyer inspecting the samples; the great importance of accurate grading (nowhere carried out more admirably than by the London wharfingers) is obvious from the fact that the degree of roasting required by "elephant" would char grade "C" to a cinder. In the auction catalogues the various lots of coffee are, of course, distinguished

by marks, country of origin, ship and wharf lot, as well as by the grades that have been assigned them according to the above classification. The London coffee auctions are held twice weekly, at present on Tuesdays and Thursdays, at the Commercial Sale Rooms, Mincing Lane, E.C., at 1.30 p.m. Brokcrage is ½ per cent. for buying and 1 per cent. for selling; bids rise by 6d. per cwt. There is a discount of 1 per cent. for payment cash against warrants on the prompt day (notified at the top of each catalogue), which is always not later than one month after the purchase date. Warrant weights are taken for invoicing goods, and there is a customary draft allowance of 2 lb, per bag. The conditions of sale and terms of payment have been formulated by the Coffee Trade Association of London, and are so thoroughly understood and accepted that catalogues describing coffee offered for sale contain the clause, "Conditions of sale as rules of the Coffee Trade Association of London." Coffee is also sold by private arrangement, but the best grades are usually sold under the hammer. Coffee is stored in bonded warehouses in bags of varying weight, 140 lb. being the usual weight, except for East Indian and Mocha coffees, which usually come in bags of 160 lb. The delivery is under the supervision of the Customs officials. If the coffee is for domestic consumption a certificate must be obtained from the Customs in Upper Thames Street, showing that the duty has been paid, and this, together with a dock warrant, must be shown to the Customs officer in charge of the bonded warehouse before the coffee can be delivered to the buyer. If the coffee is not for home consumption, a certificate to that effect must be obtained from the Customs office, and this with a dock warrant must be shown to the Customs officer before the coffee can he delivered. The delivery system is excellent, and the London coffee trade is remarkably free from disputes.

Cognac Oil.—Oil of cognac is used to a considerable extent in the manufac'ure of flavouring essences, and to a limited extent in perfumery. The true or natural oil is the distillate of the residues of wine used for the production of brandy, or of the yeast cakes remaining after the removal of the wine. The most important investigation of the natural oil is that of Rosenstiehl, who found that the actual esters in a given oil depend not only on the nature of the grapes employed, but also on the micro-organisms which develop on the fruit. The crude oil is usually green in colour, due to traces of copper dissolved by the free fatty acids. A genuine oil has a specific gravity 0.870 to 0.890; refractive index, 1.4270 to 1.4325; optical rotation, -0° 30′ to +0° 45′; acid value, 25 to 110; and ester value, 140 to 250. The oil was investigated so long ago as 1836 by Pelouze and Liebig, who considered the principal constituent was ethyl cenanthylate, which was believed to be identical with ethyl pelargonate. It is now known however, that the oil is a mixture of the capric and caprylic esters of ethyl and amyl alcohols. There is an artificial oil of cognac which is used to a considerable extent in place of the natural oil. It consists, in the main, of the ethyl esters of manthylic and pelargonic acids. The former acid is produced by the oxidation of enanthol, which results in the destructive distillation of castor oil. Pelargonic acid results from the action of nitric acid on oil of rue, and the resulting acid can be converted into its ethyl ester by esterification with dry hydrochloric-acid gas.

Cohune Nuts are the ripe seeds from the fruits of Attalea Cohune, a species of palm which is native in South America, especially Honduras. Their use in commerce is as a source of fixed oil.

Coinage, Law of.—The Crown had the exclusive right at common law to make and issue money. This is now regulated by statute, chiefly the Coinage Acts, 1870 and 1891; but where there is no express provision under these Acts, the King may regulate by oroclamation any matter of coinage, and this has the force of law as if enacted under the Coinage Act, 1870. Every transaction entered into and every instrument or security for money or involving payment or liability to pay money must be made or entered into according to coins that are current or legal tender, unless made or entered into according to the currency of some British possession or

The C.&D. Commercial Compendium



dominion or a foreign state. These coins are either:
(1) metal coins issued by the Mint, which have not been called in and which have not been diminished in weight below the minimum weight fixed by law; or (2) bank notes issued by the Bank of England, and which are legal tender for all sums of £5 or upwards, except by the Bank itself; or (3) Treasury notes issued under the Act 4 and 5, Geo. V, ch. 14, which are legal tender to any amount. The Crown may also by proclamation give currency to certain other coins. Generally speaking, all metal coin having currency is issued by the Mint, and must conform to a certain standard of weight and fineness fixed by law, gold coins being of a fineness of fineness fixed by law, gold coins being of a fineness of $\frac{1}{12}$ gold, and silver of a fineness of $\frac{37}{40}$ silver. To ensure conformity to this requirement of weight and fineness the trial of the pyx takes place every year that coins are issued from the Mint. For this a warrant is issued by the Commissioners of the Treasury, fixing the day and hour for the trial to be held in the Goldsmith's Hall. A precept is issued to the prime warden and warden of the Goldsmiths' Company requesting them to summon a jury of not less than six of the freemen of the Mystery of Goldsmiths of London or other competent persons. The King's Remembrancer presides at the trial. For gold coins one coin is taken out of each 2,000 ready for gold coins one coin is taken out of each 2,000 ready for issue; for silver, one coin is taken out of each journey weight of 60 lb. troy. The coins are weighed and assayed before the jury and they give a verdict in writing, signed by each of them, of the result. This verdict is filed in the office of the King's Remembrancer, and a copy of it is sent to the Treasury and one deposited at the Mint. Metal coins from the Mint are legal tender: (1) in the case of gold coins to any amount; (2) in the case of silver coins to an amount not exceeding forty shillings; (3) and in the case of copper coins, to an amount not exceeding one shilling. The King in Council may by proclamation call in coins of any date or denomination. Any gold coin so called in is directed to be cut, broken Any gold coin so called in is directed to be cut, broken or defaced by the person to whom it is tendered in payment, and the loss falls on the person who tendered it. This applies also to gold coin, which has, through wear or otherwise, fallen below the minimum weight fixed by law. But in the case of light gold coins not called in by proclamation, the holder may have them exchanged for new coins of the same nominal value at the Mint if they have not been illegally dealt with. The importa-tion into the kingdom of foreign coins other than gold or silver is forbidden. It is an offence to make or counterfeit coin, or to tender or utter any counterfeit coin, and, in the case of gold or eilver coins, it is unlawful for anyone to have in his possession with wrongful intention three or more such coins. Having presses or other coining tools in one's possession is also an offence.

Colchicum.—The root or corm, both fresh and dried, and the seeds of Colchicum autumnale are official in the B.P. This is the only species of colchicum indigenous to this country, and the fresh corm is therefore practically certain to be the right plant, but no such certainty attaches to imported dried corms and seeds, as there are about 23 other species of colchicum found in Europe. The corm is usually dug up either in May, when the leafy growth has attained its maximum development and before the seed vessels are matured, which takes place in June, when the leaves soon wither. The seeds are collected in July. Until the end of September when the flowers appear, there is no visible indication of the plant in the soil, and therefore the corm is sometimes dug up when the flower appears, as an indication of where the corm occurs. The dried corm is usually sold in two qualities, dependent chiefly on size and clean appearance, the best quality consisting of slices of the larger corms, and the second and cheaper quality of the smaller and younger corms. The seeds which are collected in July are somewhat sticky when fresh, from the presence of glacose, which varies in the dried seeds from 1½ to 7 per cent, and must be taken into consideration in estimating the extractive of tinetures, etc. The U.S.P. requires the dried corms to yield not less than 0.35 per cent, of colchicine and the dried seed to yield not

less than 0.45 per cent. The seeds are exceedingly hard, but if boiled in the water of the menstruum used in making preparations and the water strained off, they can be easily powdered. The wild plant occurs in this country in abundance only in a few of the western counties on the borders of Wales, although sparingly scattered in various oolitic districts. It is from Shropshire and the neighbouring counties that the commercial supplies are chiefly derived. The Continental product, however, is offered so cheaply that it barely pays for collection in this country. The active principle now described as an alkaloid colchicine exists in the seeds chiefly in the seed coats to the extent of 0.2 to 0.8 per cent., but colchicum also yields a crystalline body colchicine, of which colchicine is the methyl ester. Colchicine requires to be kept in amber-tinted bottles.

Colchicum and Colchicine [Off. Abbrev.: Colchicin.].—The alkaloid is included in Part I of the Schedule and its preparations in Part II. Colchicum is a poison within Part II, on account of it containing the poisonous alkaloid colchicine.

Colocynth, or Bitter Apple.-The dried pulp of the fruit is the part used in medicine. The plant which ruit is the part used in medicine. The plant which yields it (Citrullus Colocynthis, Schrad.) belongs to the Cucurbitaceae, and is perennial, with rough divided leaves, recalling those of Bryonia, which creeps over sand hillocks in desert places from India to Morocco, and is especially abundant in Upper Egypt and Nubia. The fruit is of the size of an orange, having a smooth, marbled, green and white surface when growing but which green and white surface when growing, but which becomes brown when dried. Colocynth is imported chiefly from Alexandria and other Egyptian ports; Almeria, in Spain, occasionally also from Russia, Trieste, and Persia. That imported from Mogador is usually larger and un-peeled, and brown externally. The Turkish and Spanish are whitish, having been peeled after drying, the Turkish showing no traces of the rind, but the Spanish, which is inferior in whiteness, probably through slower drying, has often pieces of the rind attached that have not been removed by the knife. The Egyptian is peeled, but usually broken up and freed from seeds; it comes from the Anglo-Egyptian Sudan. Persian colocynth forms small compact balls, having a shrunken appearance, that seem to contain an unusual quantity of seeds, but the fruit has been peeled before drying, and the pulp in drying occupies less space, for it was found by Umney that it contained the normal weight of seeds. Some of the seeds are pale, and others brown. The pale seeds in light the principles of the fruit as the cartiedous indicate the unripeness of the fruit, as the cotyledons are shrivelled and the seeds will not germinate. Mogador colocynth is rarely imported now. It served for filling the show bottles in chemists' windows in the middle of the last century. Colocynth pulp is sold in powder of two qualities. The one is the pure pulp freed from seeds, and not containing more than 10 per cent. of them, which Squire found that the ash percentage of the rowdered pulp allowed according to the B.P. 1914. them, which Squire found that the ash percentage of the powdered pulp allowed, according to the B.P. 1914, since the ash of the pulp varies between 8.6 and 14 per cent. and that of the seeds between 2.2 and 4 per cent. (or 8 per cent. of ash). The other powder is used for commercial purposes, and consists of the pulp with the seeds not removed befor grinding, and is sold much more cheaply under the name of bitter apple as an insectifue for the pretaction of furre etc. as an insectifuge for the protection of furs, etc. A curious use is made of the fruit by the people of Berber, in Egypt ("Pharmacographia" (2), p. 297). The fruit and leaves are heated in an earthen vessel with a hole in it and reversed, and the tar that drips out is used for smearing leather water bags. The bad smell of the tar, to which the unpleasant odour of the leaves contributes, to which the unpleasant odour of the leaves contributes, prevents the camels from cutting open the water bags. Another use of colocynth has recently been suggested as a preventive of the loss of spirit used in preserving museum specimens, the spirit of which during voyages home frequently disappeared. An addition of colocynth powder to the spirit was found to prevent sailors from drinking the alcohol and the preserved specimens arrived at museums in good order. at museums in good order,

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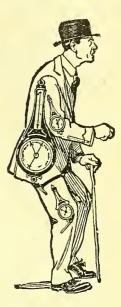
Rheumatoid Arthritis, Gout, Neuritis, Rheumatism, Lumbago and Sciatica.

Well advertised. Recommended by Doctors. Quick Sales. :: :: Generous Terms.

Stocked by ALL Wholesale Houses.

Other lines :-

ARTHROIDS BALM, CURILAX, VICAPS, STEMAT ANTI-CATARRHAL TABLETS, STEMAT ANTI-CATARRHAL BALM, My Lady's ROLETTE WRINKLE ERADICATOR, THE QUROPAD MASSAGE APPLIANCE, SANALVE, VANITY BOXES, ETC., ETC.



Write for particulars of **Cash** Bonus for Window Display.

STEPHEN MATTHEWS & Co. Ltd.

Manufacturing Chemists

19-20-21 FARRINGDON ST., LONDON, E.C.4.

Telephone: City 8342.

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Thank you!

MAY we take this opportunity of thenking all our friends, both Wholesale and Retail, for their active co-operation during the past months. Your co-operation and our extensive advertising campaign has resulted in RECORD SALES of

LOBELLINE Me Great Jung Protostos

CURES COUGHS & COLDS.

Sole Proprietors-

SQUIRE & CO. BIRMINGHAM LTD. Stirchley Laboratories, Birmingham.



for Coughs, Colds, &c.

Pays to stock

for there is an increasing demand by the Public, and it carries a good profit to you.

10 d. size, 8/6 doz. net. 1/3 size, 12/- doz. net. 3/- size, 27/- doz. net. £2 worth carriage paid. £6 and upward 5% discount. Minimum Retail as above. Profit 4d. in the 1/- on £6 lots.

Send P.C. for liberal supply of counter bills and advertising novelties.

Mandall & Co., Ltd.

17/23 Stepney Road NEWCASTLE-ON-TYNE Telephone-VICTORIA 7533 (4 lines).

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Works: LONDON, LIVERPOOL, GLASGOW

PARAFFINUM LIQUIDUM B.P.

S.G. 890/5. Guaranteed to remain bright at 0°C.

White and Half White Oils
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QUOTATIONS & SAMPLES will be sent on application.

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THE FINEST BRITISH LANOLINE PRODUCED

IS MANUFACTURED BY

THE PHARMACEUTICAL LANOLINE CO. Carnwath Road, Fulham, London, S.W.6.

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HALF-WHITE OILS, TRANSFORMER OILS TECHNICAL WHITE OILS

PETROLEUM JELLIES SNOW WHITE BP AND NATURAL WHITE BP

Pure Russian White Oils

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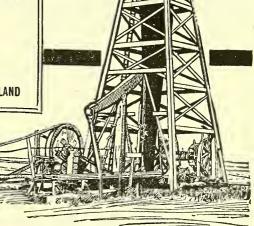
WHITE & HALF WHITE OILS

B.P. AND TECHNICAL QUALITIES

Wholesale Trade only

STERNS LTD

80 ROYAL LONDON HOUSE, FINSBURY SQUARE, LONDON, ENGLAND



Petroleum Jelly

White, Yellow, Amber, & Ruby Red, for all Pharmaceutical and Veterinary purposes

MEADE-KING, ROBINSON & CO., LTD.

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PURE RUSSIAN LIQUID PARAFFIN MEDICINAL B.P.

ALL GRAVITIES.

HIGHEST VISCOSITY.

"JASMINE" BRAND WHITE OILS

CHEMICALLY PURE. WATER WHITE. ODOURLESS. FOR MANUFACTURING PURPOSES.

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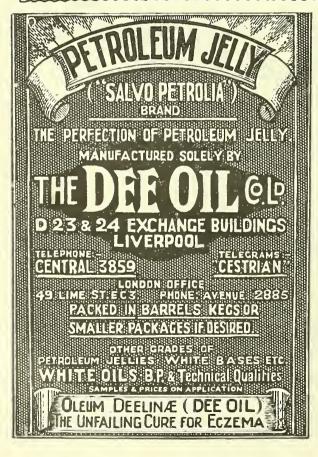
Best Quality.

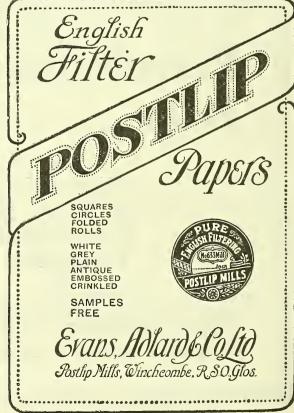
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Russolax

Russian Medicinal Paraffin

Recommended by the most eminent Surgeons and Physicians for Chronic Intestinal Stasis (Chronic Constipution).

OBTAINABLE AT ALL CHEMISTS AND STORES IN 10-0z. AND 20-0z. PANEL BOTTLES,

Sole Manufacturers:

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Liquid Paraffin Specialists,

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WE SPECIALISE IN



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For Medicinal purposes you MUST have

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The Highest Standard of Quality

We invite your enquiries for

PETROLEUM JELLY White Yellow

Yellow Red CASTOR OIL FINEST COLZA OIL

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| SPERM OIL | NEATSFOOT OIL | OLIVE OIL | WHITE OILS | COD LIVER OIL

NUT OIL, FINEST Edible Arachide

LUBRICATING OILS of all descriptions

Wholesale only

JAMES ARNOTT & SONS, Ltd.

Send for Prices and Samples. Write us soon...To-day—

Thank you!

HEAD OFFICE:

47, Pilgrim Street, NEWCASTLE-ON-TYNE





FAIRY

Mean Greater Turnover for You - and Absolute Satisfaction for Your Customers.

THERE is no more attractive line on the market to-day—there is no better seller—and no article has made larger strides in popular favour.

are now sold in glass tubes, encased in smart, clean-looking "safety-first" They are retailed at 2d. each, made in 25-popular shades and colours, and are extensively advertised in the right publications.

You can rely upon Fairy Dyes-for prompt delivery in any quantities-for fresh stocks-for quick, easy-to-handle, clean turnover, and as tried favourites your customers are always satisfied. See that you are supplied without delay.

For Trade Terms and particulars write to

61 WELL ROAD GLASGOW.

London Depot 292 UPPER STREET, ISLINGTON, N.1.



When it's a matter DYES — turn

They pin their faith to Drummer because Drummer is reliable and satisfies them every time-you too can pin your faith to the Drummer proposition, the BEST SELLER.

CUT-OUTS, SHOWCARDS, Trade terms and full range of attractive advertising matter sent free on receipt EDGES. BULTON of postcard to

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25 SAFE and SIMPLE COLOURS TO RETAIL

The original and by far the best STICKY FLY CATCHER on the Market. 40 years' reputation.

The 'FLY CEMETERY,' in Sheets
The 'CATCH O' PAPER,' ,,
The 'CEMETERY' FLY BAND, 3in wide
The 'SWALLOW' FLY BAND, 2in wide
Prices on Application.

Manufacturers:
TUNBRIDGE & WRIGHT, READING
Telegraphic Address:—" Flies, Reading."

TO YOUR TURNOVER.

Worm Cure

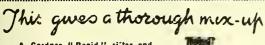
FOR DOGS. Original and Genuine.

Gives remarkable results with perfect safety. Unsolicited testimonials constantly received. Packed in three sizes, puppy, medium and large. Uniform price 10/- per dozen boxes.

Sole Proprietors:

HARKNESS, BEAUMONT & CO. Wholesale Chemists - - LEITH, EDINBURGH.



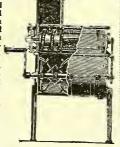


A Cardner "Rapid" sifter and mixer will thoroughly sift and mix oz. of one ingredient with a 30-lb. mixture of dry powders at one operation, and "every pinch of the whole will show its presence"—a customer's statement.

Write us for list of Ball Mills, Disintegrators, Millstones and Mills, Drum Sieves, Drying Machinery, etc.

WM. GARDNER & SONS (Gloucester) LTD.

Bristol Road, GLOUCESTER.



COLLAPSIBLE TUBES!

HAVE YOU SEEN

Cowles' Filling and Closing Machines?

3 NEW MODELS HAND, PEDAL £10:10:0 upwards

ECONOMY SPEED LABOUR-SAVING
DETAILS ON APPLICATION

E. Cowles, Hounslow, London, W.





Profits that may pass to dairymen

Mothers who buy Humanised Trufood until their babies are nine months old, can easily be persuaded to buy Trufood Full Cream for many months thereafter. serves as advance sales agent for the other. It is up to you to see that your Trufood customers stay with you for eighteen months or two years, instead of transferring their patronage to the dairyman after the bottle-feeding stage is passed. Trufood is the best baby food proposition for the pharmacist. Analyses show this striking similarity between Humanised Trufood and breast milk:

	Cows' Milk	Breast Milk	Reconstituted Humanised Trufood
Lactose	4.7	6.2	6.25
Fat Casein	3·5 3·0	3.3	3·45 0·8
Lactalbumen	0.3	0.4	0.6
Salts (mineral) Water	0·8 8 7· 7	0·2 88·7	0.6 88.3
	100.0	100.0	100.0

The figures are remarkable, but of even greater importance is the identity of such physical properties as the emulsified state of fat, colloidal condition of proteins, the presence of vitamins and enzymes—all distinctive Trufood features.

Let our special Sales Promotion Department cooperate with you in expanding Trufood sales, post card will establish contact.

Trufood is obtainable only from pharmacists, in 10-oz. tins at 2s 9d, and 20-oz. tins at 4s 9d. Trufood Full Cream in 10, 20, and 36-oz. tins, at 2s, 4s, and 7s. No other channel of supply is open to the public.

Are you exhibiting a Trufood photo showcard? If not, please write for one.

There are two stages of infant feeding: First stage, birth to nine months, breast milk or Humanised Trufood; second stage, nine months and onwards, Trufood Full Cream.

Recommend Trufood Full Cream also for invalids and nursing mothers.

TRUFOOD LIMITED. THE CREAMERIES, WRENBURY, CHESHIRE

TF 156-130

DURING WEATHER

YOU are constantly asked for some food that is sufficiently refreshing to tempt the invalid's palate. BOVO-LACTIN ESSENCE in cold water or soda water is most palatable and refreshing-it is an ideal change of diet -though not predigested, it is just as easily assimilated. Apart from its own very high nutritive properties (e.g., protein over 30 per cent., mostly ox-protein), it enables the patient to extract greater value from other food taken at the same time; its tonic effect is immediate without after-reaction. In recommending it you will enhance your own reputation.

Bovo-Lact

DISCOUNT 381 per cent. on 3 dozen lots.

Food Products, Ltd., Twickenham, Middlesex.

Wholesale Distributors:

Fassett & Johnson, Ltd., 86, Clerkenwell Road, E.C.1.

TABLE WATERS -

- in Syphons & Bottles LEMONADE POWDER in Packets, Cartons,

AQUAPERIA WATER) or SALTS (P.A.T.A.)

WINDOW DISPLAYS.

LEMON SQUASH -- in 26 oz. Bottles. (with plain or Soda water forms a delicious drink).

HOME and EXPORT PRICES and TERMS on application.

CAMWAL, Ltd. LONDON, MANCHESTER, BRISTOL, BIRMINGHAM, HARROGATE.

City Office: 52 Queen Victoria Street, LONDON, E.C.4

The ideal milk sugar for babies. We are having direct orders from all parts of the country. Why not participate in this business?

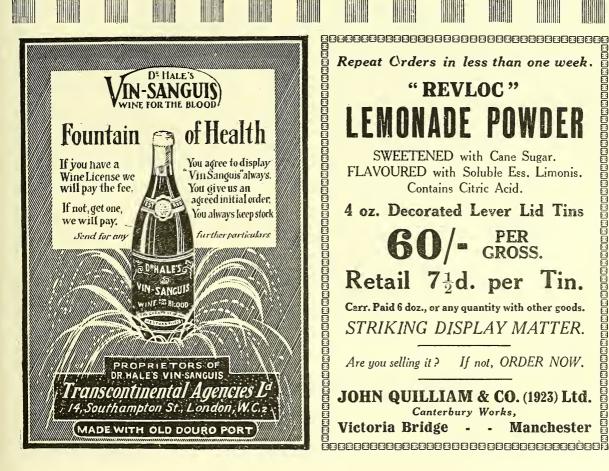
For terms write to Proprietors

MAWSON & PROCTOR, LTD.

NEWCASTLE-ON-TYNE.

VICHY AGRÉABLE IS GAINING RAPIDLY IN POPULARITY. ONCE INTRODUCED TO CUSTOMER ITS SOFT FLAVOUR AND SPARKLING **EFFERVESCENCE** MORE SATISFACTION THAN ANY OTHER THAT. SPRING. COMBINED PRICE LOWER AND HANDSOMER PROFIT. SHOULD INDUCE CHEMIST TO STOCK AND PUSH IT.

JOHN W. ROYLE, LTD., 19 OXFORD STREET, LONDON, W.1. 'PHONE: MUSEUM 1474.



Repeat Crders in less than one week.

"REVLOC"

LEMONADE POWDER

SWEETENED with Cane Sugar.
FLAVOURED with Soluble Ess. Limonis.
Contains Citric Acid.

4 oz. Decorated Lever Lid Tins

60/- GROSS.

Retail 7½d. per Tin.
Carr. Paid 6 doz., or any quantity with other goods.

STRIKING DISPLAY MATTER.

Are you selling it? If not, ORDER NOW.

JOHN QUILLIAM & CO. (1923) Ltd.

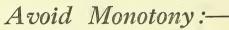
JOHN QUILLIAM & CO. (1923) Ltd. Canterbury Works,

Victoria Bridge Manchester

A BRITISH ACHIEVEMENT IN NEW ART GLASS CONTAINERS

Inaugurating a brighter epoch in counter and shop window display.





"Monotony in window display must be avoided at all costs . . . but, somehow, bottles of perfume, boxes of powder, jars of bath salts, batches of compacts, have an aggravating habit of looking alike."

"Toilet Requisites," June, 1925.

NEW & BRIGHTER COLOURS—

Manufacturers of toilet preparations can henceforward banish monotony in their glass containers by exploiting the wonderful range of beautiful art colours in which we are now making bottles for perfumes and jars for toilet creams, bath salts, etc.

These new and charming glass products have a distinctive beauty and variety not previously attained in this class of glass-ware. They provide a means by which toilet preparations can be presented to the buying public in a more attractive form tien has hitherto been possible.

NEW ART DESIGNS—

Not only can we offer variety in colour, but also in design. The application of artistic design to glass containers is a new practice in this country and its development is of special interest to the perfumery and allied industries. Our new designs combine originality with appropriateness and by their adoption monotony can always be avoided in the display of toilet preparations.

WOOD BROTHERS GLASS COMPANY, LTD.
(Established 1828.)
BARNSLEY, ENGLAND.

42 CANNON ST. LONDON E.C.4

AUGUST 1, 1925.

This Supplement is inserted in every copy of The Chemist & Druggist.

CHEMIST DRUGGIST AND SUPPLEMENT

REVISED ADVERTISEMENT TARIFF.

Businesses Wanted and for Disposal, Premises to Let, Goods for Sale, and Agencies—6/- for 50 words; every Goods for Sale, and Agencles-additional 10 words or less, 6d.

SITUATIONS OF EN-6/- for 40 words; every additional 10 words or less, 6d.

SITUATIONS WANTED-2/- for 18 words; every additional 10 words or less, 6d.

BOX NUMBER.

Legal Notices, Tenders, Auctions, and all specially-spaced announcements, 1/3 per nonparell line (12 lines = 1 inch

single column).

Miscellaneous (Wholesalers') Section for odd and second-hand lots—10)- for 60 words; 1/- for every additional

10 words or less.

EXCHANGE COLUMN (for Retailers, etc.)—Twopence per word, minimum 2/-.

In each case replies may be addressed to a registered number or nom-de-plume, c/o this Office, at a charge of 1/- extra for each advertisement. PAYMENT.

All Advertisements are prepaid, so that remittance must accompany instructions in each case. If it be necessary to telephone or telegraph an urgent announcement this may be done, provided the money is telegraphed at the same time.

THE CHEMIST AND DRUGGIST, 42 Cannon Street, LONDON, E.C.4.

Telephone: Central 3617 (3 iinos). Telegrams: "Chemicus, Cannon, London" (2 words).

CLOSING FOR PRESS.

ADVERTISEMENTS INTENDED FOR INSERTION IN THIS

MUST REACH US NOT LATER THAN

FIRST POST THURSDAY MORNING.

Messrs. Orridge & Co., 56 Ludgate Hill, E.C.

Telephone No.: CITY 2283.

May be consulted at their Offices on matters of Sale, Purchase and Valuation.

May
1.—LONDON, S.W. (Good-class Suburb).—Family Retail and
Dispensing Business; returns, £3,500 per annum, with scope
for considerable increase; modern double-fronted shop, fitted in
mahogany and fray stocked; excellent position; 12 years' lease
to run; terms: lease and goodwill, £750; stock and fixtures at
valuation.

valuation.

2.—KENT (Suburban).—Ready-money Retail Business, with Rodak Agency; returns, about £1,150 per annum, under management; scope for extended trading under the supervision of a principal; double-fronted, lock-up shop; rent, £30; price, £600.

3.—LONDON, S.E.—Cash Drug Stores, with excellent opening for N.H.I. Dispensing; established 30 years; returns, £780 per annum; single-fronted shop; small living accommodation; held on lease at moderate rental; price, £530, cr near offer.

4.—LONDON, N.E.—Ready-money Retail Business, with N.H.I. Dispensing; returns last year, £2,653; with net profit at least £600; double-fronted corner shop; very good stock; house available; private entrance; 14 years' lease; moderate rent; price £1,250.

5.—HAMPSTEAD (Near) (Death Vacancy).—For immediate disposal, an old-established Readymoney Business, situate in busy marketing thoroughfare; bold corner position; returns average £2,200; present rate less; a new lease will be granted for 21 years; there is a sublet paying a large proportion of the rent; price, about £1,000.

price, about £1,000.

6.—SOUTH COAST (Health Rescrt).—Main shopping thorough fare; good-class Retail, Dispensing and Photographic; Kodak Agency; returns last year, £1,348, steadily increasing; net profit, £366; double-fronted shop, lock-up; rent, £50; 14 years' lease; price, about £1,000.

7.—SHEFFIELD (Near).—Middle-class Business, with Revall and Kodak Agencies; N.H.I. returns approximately £34 weekly; net profit, £400 per annum; books audited; 7-roomed house with private entrance; price, to include property, £1,700; mortgage can be arranged on property.

8.—KENT.—Old-established Business, General Retail, with Stationery; returns average about £40 weekly; excellent oppor

tunity to increase the turnover in the hands of a more energetic man and by the addition of N.H.I. Dispensing; two shops, intercommunicating; heavily stocked; further details on application.

9.—DERBYSHIRE.—Family Retail Dispensing and Photographic Business; established 1890; returns last year, £2.259; gross profit, £900; double-fronted shop, well fitted in mahogany and fully stocked; lcck-up pharmacy, with store rooms; held on lease; moderate rental; terms, lease and goodwill £300, stock and fixtures at valuation.

10.—SUSSEX.—Geod-class Retail Dispensing and Photographic Business; returns, 1924-25, £1,653; gross profit, £567; double-fronted, lock-up shop, 25 ft. x 16 ft.; modern fittings; good working stock; rent and rates about £50 per annum; price, £1,250.

11.—HOME COUNTY.—For disposal on account of ill-health, General Retail Business, with good opening for Photographic; returns, £1,100 per annum, present rate less; estimated value of stock and fixtures, £300; house contains six rooms and kitchen; rent, £40; lease, 10 years unexpired; price, £350.

12.—BRIGHTON.—Cash Drug Stores, very much neglected; present returns about £12 weekly; single-frented shop, new front; stock and fixtures estimated by vendor at £400 (all new); new lease will be granted or property may be purchased; price, £550, or offer entertained.

13.—EASTERN COUNTIES.—Mixed Country Retail Business, established 50 years; returns, 1924, £2,650; large double-fronted shop, with good working stock; excellent house, with private entrance, garden and garage; a new lease will be granted or the freehold may be purchased; price of business, £1,650, or valuation terms entertained.

14.—LINCOLNSHIRE.—Agricultural and Prescribing Business, with Kodak Agency; returns last year, £1,680; double-fronted shop, fitted in mahogany; good living accommodation; rent, £50; 18 years' lease, with option to purchase freehold for £1,200; nearest opposition 6 miles; price, £1,350, or lease and goodwill £250; stock and fixtures at valuation.

Messrs. O. &, Co. desire to emphasize the necessity of a periodical Statement of Account by which means alone Profit, the value of Business, &c., can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often emitted and eventually becomes confusion and loss.

Valuations for Stocktaking

Messrs. O. & Co. are prepared to undertake these essential duties and make Special Terms for such service.

ORRIDGE & CO., 56 LUDGATE HILL, LONDON, E.C.4

The Association of Mnfg. Chemists

BUSINESS AGENCY TRANSFER AND VALUATION DEPARTMENT

Head Offices-Kimberley House, Holborn Viaduct, London, E.C.1

(and at 2 Bixteth Street, Liverpool)

PARKIN S. BOOTH. Accountant and Valuer (TELEPHONE:-CITY 1261-2-3.)

BUSINESSES FOR DISPOSAL.

BUSINESSES FOR DISPOSAL.

1.—LONDON, S.E.—Entire Stock, Fixtures, Fittings and Utensils in trade of Chemist and Druggist's business for immediate disposal. Full particulars on application.

2.—KENT.—Very old-established, bigh-class Retail and Dispensing Business; premises consist of large shop, convenient dwelling accommodation; shop well fitted in manogany; situated in principal shopping thoroughfare of town; premises held on valuable lease, 51 years to run at £120 per annum; good stock corried; returns for three years to 1924 average approximately £3,420; could be considerably increased with personal supervision. Fullest particulars on application.

3.—MEDICAL HOSIERY BUSINESS.—Partner required, lady or gentleman; preferably one already connected with wholesale surgical belt and appliance business; investment required £1,000. Full particulars on application.

4.—SOMERSET.—Old-established Business, in country town; returns, £22 p.w.; 7 years' lease, at £40 p.a.; lock-up double-fronted shop; price £1,200, or offer. (144)

5.—S. DEVON.—Good-class ready-money Business in important town; returns, £30 p.w.; Kodak, N.H.I., etc.; double-fronted shop, with 8-roomed house; price, including freehold property, £2,600. (134)

6.—SOUTH DEVON.—Very old-established Business in residential district of busy town; returns, £34 p.w.; rent, £90; lease to be arranged; double-fronted, well-fitted shop and house with 7 rooms; side entrance, store, etc.; price £1,450. (154)

7.—DEWSBURY.—Situated in best position, Retail Chemist's and Druggist's Business; rental, £160 per annum; rates, £45 per annum; present turnover, £20-£35 per week; can be considerably increased, there being good scope for energetic man; stock at cost about £800; fixtures and fittings, £100. Further particulars can application.

8.—SOUTH COAST (Health Resort).—Good-class Chemist and Druggist, in best part of the town; new building; attractive

particulars on application.

8.—SOUTH COAST (Health Resort).—Good class Chemist and Druggist, in best part of the town; new building; attractive shop fitted in oak; returns, about £35 p.w.; Kodak, N.H.I., etc.; dwelling accommodation with separate entrance. Price £1,500—property could be acquired. Fuller particulars on application. (125)

9.—LONDON, W.1.—Good Dispensing Business in populous suburb; 8 years' lease at £150 inclusive per annum; price for goodwill, fixtures and fittings £400, or near offer; stock at valuation, or, if preferred, stock can be removed. (114)

goodwill, fixtures and fittings £400, or near offer; stock at valuation, or. if preferred, stock can be removed. (114) 10.—YORKS.—Cash Business, in main road, in important industrial town; 5 years' lease will be granted at £90 to £120 per annum; returns, £30 per week; Kodak Agency; dwelling accommodation; price, goodwill, £450; stock, fixtures at valuation. 11.—CHESHIRE (8mall Market Town).—Retail Chemist and Druggists; established 26 years; 9 years' lease at £28 per annum; returns, £25 per week; large lock-up shop with ample storage accommodation; every convenience. Fuller particulars on application.

12.—CORNWALL.—Cash Retail and Dispensing Business; nicely fitted and well stocked; premises held on lease, expiring March, 1928, at £50 p.a.; sub-let £15 p.a.; returns £1,700; scope for increase. Fullest particulars on application.

13.—LONDON, S.W.—Family Retail High-class Dispensing Business; well fitted and good stock carried; established 30 years; premises consist of lock-up shop, held on lease 14 years at £80 per annum; last year's returns, £2,500; scope for increase. Fullest particulars on application.

14.—CHESHIRE.—Old-established Cash Retail Pbarmacy, with Wine and Spirit Licence. Double-fronted Corner Shop, with good dwelling accommodation; held on lease, 72 years unexpired, at £100 per annum. Returns £1,100 per annum. Scope for considerable increase. Full particulars on application.

15.—OLDHAM.—Cash Retail Business, established 12 years; property, which is freehold and for Disposal, consists of shop, cellarage, and convenient dwelling accommodation: returns, including N.H.I., £35 per week; price for property, £750; stock and fixtures at valuation.

16.—BUCKS.—Cash Retail Business, recently established; lock-up shop premises, situated on main road; nearest opposition 3 miles; held on tenancy agreement at 8s. per week; returns average £19 per week; excellent scope. Fullest particulars on application.

STOCKTAKING.—Do you realize the importance of knowing the true value of your stocks, and thus being able to arrive at a net working profit? We undertake this work for an inclusive fee at short notice. Write for terms.

BERDOE FISH

WILLIAM S. FISH.

VALUERS AND TRANSFER AGENTS.

41 Argyle Square, KING'S CROSS, W.C.1 (One minute from St. Pancras and King's Cross Stations.)

(One minute from St. Pancras and King's Cross Stations.)

1.—NORTHERN SPA.—Family Dispensing, no Panel; returns, £2,250; well-fitted pharmacy, heavily stocked; price about £1,700.

2.—WESTCLIFF-ON-SEA (Near).—Good-class Retail and Dispersing Business, in rising seaside town; returns, over £30 % week, increasing; fine opening for Photographic; large shop, prominent position; price £800, or near offer.

3.—SOUTH COAST.—Good-class Business; easily worked; in growing seaside resort; unopposed; returns, about £1,600; good profits; large shop (lock-up), fully stocked; price, £1,250.

4.—SOUTHAMPTON (Near).—Very profitable Light Cash, Betail, with N.H.I.; in rapidly growing part of busy town; returns, £800; plenty of scope; [cw rent; long lease; selling through illness; price £700, or offer.

5.—NORFOLK (Market Town).—Sound old-established Mixed Country Retail; returns, £2,650; net profit, £500; excellent house and pharmacy; well stocked; price about £1,650.

6.—EASTERN COUNTY (Death Vacancy).—Unopposed Mixed Country Retail; present returns, £20 weekly; plenty of scope; large house and garden; price, including freehold, £1,400; £400 can remain; recommended.

7.—SUSSEX COAST.—Good-class Retail and Dispensing, with Kodak Agency, no Panel; returns, £1,350; scope for increase; very low rent; valuable lease; well-fitted Pharmacy; main road position; price, £1,000.

8.—LONDON, S.W. (Good Residential Suburb).—First-class light suburban Retail, in splendid main road position; returns, £3,500, will do £5,000; handsome modern Pharmacy; every convenience; heavily stocked; price, £3,000 cash; worth attention.

9.—LONDON, N.—Good-class Cash Retail; returns, £1,700; attention.

9.—LONDON, N.—Good-class Cash Retail; returns, £1,700; net profit, £600; low rent; lease; good house; heavily stocked; price £1,400, or offer.

STOCKTAKING VALUATIONS.

We are now booking dates for August and September, and invite early correspondence. Terms on application.

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BRETT

ALL VALUATIONS HAVE THE PERSONAL ATTENTION OF F. I. BRETT, M.P.S.

Transfer Agents and Valuers, LAUREL ROAD, LEICESTER.

Telephone: 1934.

BUSINESSES WANTED

WE HAVE CASH BUYERS FOR ALL SIZES & CLASSES OF BUSINESSES.

CHARLES C. MARSDEN

Valuer, Transfer Agent & Stocktaker,

44 Sholebroke View, LEEDS.

VALUATIONS for Stocktaking. Special low terms.

Recommended and approved by Messrs. Goodall, Backhouse & Co., Hirst, Brooke & Hirst, Ltd., and Raimes & Co.

We desire particularly to draw the attention of Colonial and Foreign Subscribers to the fact that in cases where they require partners, agents or assistants, or wish to sell their businesses, an Advertisement in this Supplement, placed in every copy of "The Chemist and Druggist," should be the readiest means of helping them to attain their object. The tariff for such announcements is given under the appropriate headings in the Supplement, Instructions and remittances can be sent to us direct or through the advertisers' correspondents in this country. dents in this countru.

BUSINESSES FOR DISPOSAL.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-

BOURNEMOUTH (near), in rapidly growing district.—Good-class Family and Dispensing Business for Sale; excellent house and garden; modern conveniences; returns about £1,500; owner selling on account of ill-health. Full particulars from "W. T. S.," 69/291, Office of this Paper.

DEVON (Coast).—Excellent opportunity to secure a good-class Light Retail and Dispensing Business with Kodak Agency; good living accommodation; stock and fixtures all new; returns about £40 per week (average). Full details from Valuation Dept., Evans, Gadd & Co., Ltd., Exeter.

A SOUND INVESTMENT.

TASTERN MIDLANDS.—Fine opportunity for acquiring as a genuine bargain, up-to-date Chemiet's Business, with Fancy Goods and Stationery; d.-f. shop, with excellent house and garage; situated in healthy market town; one other chemist; no company shops; turnover £2,400; established 50 years; good reasons for disposal; owner will grant lease or sell property; no reasonable offer refused; only wants seeing. Apply 33/2, Office of this Paner. Office of this Paper.

KENT (25 miles out).—Exceptional offer. £500 down and balance by easy instalments secures a real good Cash Business in busy industrial town; returns about £2,500, under management; will soon do £3,000; books audited; good stock; price, £1,150. Address, "J. M.," c/o Berdoe & Fisb, 41 Argyle Square, King's Cross, W.C.1.

I ANCASHIRE.—For immediate Sale, Chemist's Business in well-populated neighbourhood; established about 30 years; cash sales, 1924, £1,400; N.H.I.; about 1,400 monthly; premises can be purchased or will be leased. 69/300, Office of this

LEWISHAM, S.E.—Main read Drug Stores; old established; lease 13½ years at £60, rising £70; scope for qualified man, and for N.H.I. and Photography; price £550 (or offer). Stocker & Roberts, 3 Railway Approach, Lewisham, S.E.

LONDON.-Middle-class Suburban Business. Agency; well stocked; fine position; lease; capable of great ase under personal management; good house; present ns over £2,000, and increasing; price for quick sale, 50. 32/6, Office of this Paper. increase und returns over

LONDON, S.E.—For immediate disposal, old-established Drug Store in busy main road; lease 13½ years; rent £60, rising to £70; good opening for qualified man; N.H.I. badly needed; S.F. shop; mahogany fittings; nice house and garden; price £530, or near offer. 31/12, Office of this Paper.

MANCHESTER.—Successful modern Cash Business in pleasant suburb; main road; easily worked; returns exceed £30 per week; goodwill £350; stock and fixtures at valuation, approximately £1,000; Kodak Agency; good living accommodation, with garage and electric light throughout; property may be bought or leased; growing district. Apply 29/16, Office of this Paper.

MARKET TOWN (Northern County).—Recently-established Cash Business; returns already over £1,000 per annum, increasing; double-fronted slop; well fitted and stocked; good house at moderate rental; considerable scope for man with knowledge of Agricultural trade. 32/25, Office of this Paper.

ROTHERHAM.—Chemist and Photographic Business for disposal, double-fronted corner sbop, situate in busy thoroughtare, showing healthy return; good living accommodation, 7 rooms, bath, and private yard; mahogany fixtures; price, including property, £1,800. Further particulars from James Morrison, Estate Agent, 10 Figtree Lane, Sheffield.

S.E. COAST.—Good-class Cash Retail, with Kodak, Dispensing, and N.H.I.; modern double-fronted shop, good diving accommodation, with side and back entrance; well stocked and fitted; modern Photo plant for D. & P. work; excellent position main road and capable of further increase; exceptional opening for Optical; sound reason for disposal; turnover over £5,000: net profit about £800; rates, £30; rent, £150; new lease 21 years; house could be let off if desired. Only those enclosing bank references dealt with; cash only; price, £3,000.

SOUTH OF ENGLAND (large town).—Old-established Business; good position; low rental; Kodak Agency; large D. & P. connection; up-to-date and well-fitted plant, drying machine, etc.; spacious living accommodation over; large garden; returns about £1,500, increasing; gross profit 50%; good reasons for disposal; price for quick sale, £1,450. 31/4, Office of this Paper.

BUSINESS for Sale, main road, London, S.E.; large shop, house, garage; no opposition; long lease; well fitted; good stock; no N.H.I.; should easily do 2,500 scripts per month; rent paid by letting two rooms and part garage; profits last three years £1,555 net; audited; cash price £1,250; only principals with this amount need apply. 30/21, Office of this Paper.

IVE AWAY .- Owing to domestic difficulties, which render Table Awar.—Owing to domestic dimenties, which render a sale absolutely necessary, a snug, profitable Business in London, E., with good living accommodation and low rent is offered for little more than half its value; no reasonable offer refused; an exceptional opportunity; applicants should have at least £200 at disposal. "Sigma," 31/380, Office of this Paper.

WO old-established, profitable Chemists' Businesses for Disposal; unique main road positions in a growing district within 10 miles of London; audited accounts; good living accomnodation, electric light, telephones, garage; low rents; held on leases; turnover nearly £5,000 per annum; owner leaving the Retail. Further particulars will be supplied at interview, which will be arranged on receipt of banker's references; price, £3,500. P.C.B. 3/18, Office of this Paper.

£550 SECURES a nicely fitted and well-stocked Pharmacy Optics; good reason for selling; would accept two-thirds as part payment; takings £20 weekly; no rent. Apply 30/111, Office of this Paper.

FINANCIAL.

6s. for 50 words or less; 6d. for every additional 10 words or less, prepaid.

A VERY unusual opportunity occurs for smart Sales Manager, with some capital and integrity, to acquire a definite financial stake, as an extra incentive (and take charge of London offices in Principal's absonce), in a new-found, high-grade and original Pertumery enterprise, capable of rather unique possibilities under really intelligent direction. A gentleman (or lady) with experience and Trade connections, good entré, able to superintend and arrange public demonstrations throughout the country, seaside in particular, will find congenial, remunerative occupation, and certainly very earnest co-operation and backing. A Private Company will be formed later in the year to work on broad lines, under influential auspices, wherein an assured, responsible position would be a sine qua non of pioneer financial participation. Serious readers please write for appointment. Bankers', Solicitors' and Trade references gladly permitted; personal ones expected in exchange. A straight deal given in all respects. 31/20, Office of this Paper.

QUALIFIED lady with Retail experience is offered share in good-class Business already established, but just forming in company; owner qualified; investment £150-£200, returnable and fully secured; first-class opportunity for go-ahead worker; all particulars first letter. Apply P.C.B. 3/3, Office of this

AGENCIES.

The ADVERTISER may if preferred bave replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

TRISH FREE STATE.—Experienced Traveller, resident in Dublin, wishes to represent on commission established manufacturer, well-advertised lines, Sundries, Proprietary, Essences, etc.; would control Distributing Agency in Dublin; in latter connection financial interest if desired; bank and business references; interview London shortly. 29/26, Office of this Paper.

SOUTH AFRICA.

LENNON, LIMITED, who have been established 75 years in South Africa as Chemists, having their own Branches in all the most important centres, place at the disposal of those who desire energetic representation their unrivalled facilities for the distribution of MEDICINES, SUNDRIES, TOILET GOODS, PHOTOGRAPHIC AND OPTICAL MATERIAL, etc.,

Having efficiently staffed Laboratories, fitted with modern plant and with ample accommodation for expansion, propositions for local manufacture, with a view to avoiding the duties on imported completely manufactured preparations, would be gladly considered.

LONDON OFFICE—LENNON, LIMITED, 12/14 Lafone Street, Tower Bridge, London, S.E.1.

REPRESENTATIVE, covering Lancs, N. Wales and Midlands, for first-class London House, is open for additional Agency; own car; good connection. 69/295, Office of this Paper.

XXIV

LEGAL NOTICES.

RE E. J. DINWIDDIE, Deceased (Chemist and Druggist), 225 Brecknock Road, Tufnell Park, N.
WILL all Creditors of the late Mr. E. J. Dinwiddie submit statement of their accounts not later than August 8, 1925, to the Exors., at 6 Manor Parade, Stoke Newington, N.16.

BUSINESSES WANTED.

6s, for 50 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may if preferred bave replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

IN Manchester or district, Business required, preferably working-class neighbourhood; must bear investigation; neglected one no objection. Please state all details in reply, which will be treated in strict confidence; also state nearest opposition. "X," 29/12, Office of this Paper.

PHARMACIST, at present managing, desires a position in a good-class Pharmacy with view to early Partnership or succession; capital £1,000. 31/32, Office of this Paper.

PARTNERSHIP.

PARTNERSHIP or purchase desired by qualified Chemist; no agents. H. Greenhill, Withernsea.

YOUNG qualified Chemist, keen, capable business man, good buyer, first-class recommendation but with limited capital, desires position as Manager with view to succession; house accommodation necessary. Apply 26/34, Office of this Paper.

DIRECTORSHIP.

A PPLICATION invited for position of Working Director in a business of Manufacturing Chemists; Pharmaceutical qualification and commercial experience necessary, together with a certain amount of capital. Reply, stating age, experience, etc., to P.C.B. 2/39. Office of this Paper.

SITUATIONS OPEN.

RETAIL.

[HOME.]

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred bave replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

CIRENCESTER.—Qualified Assistant wanted for quick Cash Retail and N.H.I. Dispensing; knowledge of Photography preferred; permanent. State full particulars; interview if possible. Paternoster & Son, 170 Cricklade Street, Cirencester.

COLCHESTER.—Wanted, smart male unqualified Assistant (single) at once for high-class Dispensing business; good Dispenser and used to Counter. State age, salary, references, and photo if possible. H. E. Baker, 34 Head Street, Colchester.

EAST Coast Watering Place.—Young Assistant, temporary or permanent, wanted immediately; knowledge of Photographics essential, with Dispensing experience; lady or gentleman; livo out. State experience and salary required. 51/37, Office of this Paper.

DONDON (CENTRAL).—Assistant (male) for brisk Retail business (outdoors); no Sunday or Bank Holiday duty; good Counter and Dispensing experience essential; some knowledge of French an advantage. Write, with full particulars of total experience, salary required, etc., or call, Frizell & Co., Chemists, 1 Cranbourn Street, Leicester Square, W.C.2.

PHOTOGRAPHS, TESTIMONIALS, &c.

When answering advertisements in this section applicants are strongly advised not to send (unless specially requested) ORIGINAL TESTI-MONIALS or VALUABLE PHOTOGRAPHS. As can be readily understood, when an advertiser receives from 60 to 100 replies the task of returning photographs, testimonials, &c., is one of some difficulty.

LONDON, E.-Immediately, Assistant for small Retail. State age, experience, and salary expected, and when at liberty, to Hankinsons, Ltd., The Ilford Pharmacy, 223 Ilford Lano, Ilford, E. Telephone: Ilford 1756.

LONDON, S.E.—Wanted, an Assistant (outdoors); permanency (vacancy, September 1); must be a good Dispenser and Counterman, with knowledge of Photography. Apply, stating age, salary required, and references, to "K.," 69/298, Office of this Paper.

L ONDON, S.W.—Young, qualified Assistant, capable of taking charge of small Branch. Give full particulars of past experience, age, height, when disengaged, and salary required. 50/59, Office of this Paper.

MIDLANDS. — Experienced Dispenser-Book-keeper required immediately by Doctors in country practice; easy hours; comfortable permanency. Please state all usual particulars and salary expected in first letter to 30/26, Office of this Paper.

OUTH COAST. — Vacancy occurs for Qualified Branch Manager; permanent, progressive position to a live young man with good experience. State salary required, all particulars as fully as possible in first letter to 31/18, Office of this Paper.

SOUTH WALES.—Smart Assistant (male) required for mixed business; energetic, capable Dispenser. State full particulars, age, height, experience, references, salary, etc., in first letter. Henderson, Chemist, Llanelly.

CTREATHAM, S.W.—Qualified Manager, age 30-35, for branch, energetic; good Window-dresser, knowledge of Photography; good prospects and interest in profits for right man with cound references. Apply, with full particulars, to Rees, Chemists, Loughborough Junction, S.W.9.

Y EOVIL.—Qualified Optician, F.S.M.C. or F.B.O.A., or both, early in August; full control of Optical Department; easy hours; no Sunday duty; age about 30; good salary to snitable man. Newton, Holly Bank, Yeovil.

A BRANCH Manager (qualified), a Junior, and a Locum required immediately for good-class businesses, with Photo and Toilet Trade; energetic, reliable men only; rooms might be arranged for the manager. Full details of age, height, experience, salary, etc., to Guest, 129 High Street, Brentwood.

A LADY, young, required as Locum for two weeks, August 15 to August 29, both dates inclusive; must be absolutely reliable and trustworthy; unqualified. Apply by letter only, giving full particulars, to Mise Harris, 7 Loftus Road, W.12.

A QUALIFIED Manager required for small branch with scason trade; permanent situation for suitable man or with view to, purchase. Full particulars and references to "Pharmacist," 200 Wellington Street, Grimsby.

A SMART Junior male Assistant wanted for good-class business; must be quick obliging, abstainer, and have highest references; no Sunday or Bank Holiday duties. Apply personally to Manager, Durbin's Drug Stores, 66 The Broadway, Ealing.

A DVERTISER, 26/15 of July 25, wishes to thank all applicants, and to state that the vacancy is now filled.

A SSISTANT, Junior or Improver immediately; Agricultural, Dispensing and Photographic business; outdoor; time for study; hours 9 to 7; healthy district. Give last two references in first letter. Kirkland, Chemist, Crickhowell, near Abergavenny, Brccoushire.

A SSISTANT (lady or gentleman) required for two weeks from August 17. Also from September (permanency) Lady Pharmacist, to manage small Branch in residential district in North London; good salary to suitable person. Replies, with references, to 32/28, Office of this Paper.

BOOTS THE CHEMISTS have vacancies for qualified and unqualified Retail Chemist Assistants. Apply by letter to Messrs. Boots Pure Drug Co., Ltd., Retail Staff Department, Station Street, Nottingham.

DISPENSER wanted, not essentially qualified, but experienced; permanency for suitable man; lady in neighbourhood entertained. Apply Dr. Thornton, 573 Romford Road, Forest Gate.

EXPERIENCED lady Dispenser required as Locnm for Private Practice and Public Dispensary from August 17 to September 5 inclusive; no Sunday duty; half-day Tbursday. Write, stating full particulars, to Miss Millard, 746 High Road, Tottenham, N.17.

FULL-TIME or part-time Junior; competent and reliable.

Apply, personally if possible, Carter, 453 Romford Road,
Forest Gate, E.7.

GIBSON DIXON, 8 Old Market, Halifax, has a vacancy for a holiday supply from about August 7 to September 12; would suit young gentleman who has failed in one subject and waiting till October exam.; photo and full particulars in first letter; references.

HODDERS, Chemists, Bristol, require smart unqualified Assistant for holiday relief during Angust and September. Applicants should give full details of previous experience and quote references, stating also age, height, salary required (outdoors), to Managing Director, Henry Hodder & Co., Ltd., 5 Nelson Street, Bristol.

I MMEDIATE, Qualified Assistant (Minor), lady or gentleman; light Retail and Dispensing; Midlands. Apply, giving particulars of age, experience, with references, to "Statim," 32/19, Office of this Paper.

JUNIOR or Improver, male or female, able to Dispense. Apply, stating age, reference, and salary required; used to country trade preferred. 30/12, Office of this Paper.

JUNIOR Assistant (male). State age, experience, salary required, etc. Apply Wm. Fox & Sons, Ltd., 109, 111, 113 Bethnal Green Road, London, E.2. (10 minutes' walk from Liverpool Street).

JUNIOR Assistant wanted at once; well up in Dispensing, Counter work, Window-dressing and Photography; unqualified; male; outdoors. State age, height, salary required, and references. S. P. Sayers, 7 Brent Street, Hendon, N.W.4.

LADY, Minor qualification, wanted for Dispensing and General Retail; easy position. Give full particulars as to salary required, age, and experience. 31/30, Office of this Paper.

LOCUM, qualified man, Manchester area, industrial district; N.H.I. work only; conscientious worker; preference given to one who could give part-time help during winter months. Apply, letters only, 3 Blair Road, Alexandra Park, Manchester.

LOCUM Tenens required for four weeks from Angust 3; applicants (male) must be qualified Chemists. Apply, enclosing testimonials and stating previous experience (Hospital or such Institution preferred), to Major Raphael Jackson, Secretary, Queen Mary's Hospital for the East End, Stratford, E.15.

LOCUM, qualified, wanted at once, two weeks; Herefordsbire. Wavell, 144 Victoria Street, S.W. 'Phone: Vic. 7454.

LOCUM, qualified, required, August 24-September 12. Reply, with full particulars, terms, etc., to J. E. Brownlow, Chemist, Ibstock, near Leicester.

LOCUM, male, unqualified or recently qualified, for one month; country business; no Photographic. Beck, Chemist, Burgess Hill, Sussex.

LOCUM, Manchester district, qualified, required for Light Family Retail, from August 10 for a fortnight. Apply, with full particulars, terms, etc., 32/32, Office of this Paper.

LOCUM, August 10 to 22 inclusive; used to N.H.I. Dispensing, etc.,; qualified or unqualified; £5 per week; in close reach of Holloway Road, N. For interview, "Drng Stores," 68 Devonshire Road, N., near Royal Northern Hospital.

MANAGER required for good-class Retail, Dispensing and Photographic business; must be of good address and have had first-class experience; living accommodation if required. Blaker, High Street, Haslemere, Surrey.

MANAGER; qualified; must be up-to-date; permanency to right man; salary and commission; only applications giving fullest particulars will be considered. P.C.B. 2/18, Office of this Paper.

QUALIFIED Assistant for North London suburb; reasonable hours; outdoors; knowledge of Photography desirable; age 25-40; duties commence late August or early September. State height, age, experience, salary required, and recent references. 30/20, Office of this Paper.

QUALIFIED Manager required immediately; country business; N.H.I. Apply, with references, stating age, experience, wage required, A. F. Hancock, Ltd., Bamford, via Sheffield.

QUALIFIED Assistant; male; outdoor; senior post. Apply, stating salary required, experience, and references, to Neve & Co., Chemists (proprietor, Harold E. Skyrme), 12 Wellington Place, Hastings.

QUALIFIED Assistant for branch business; must be thoroughly reliable, and have good recent references. Please state full particulars and enclose photo. Lester, Chemist, Canterbury.

QUALIFIED Assistant (outdoors) wanted for Light Retail, Dispensing and Photographic business; easy hours; good references essential. State full particulars as to experience, ago and salary required, and when disengaged; photo if possible. Carpenter, Chemist, Sandwich; Kent.

QUALIFIED Manager, about 30 years of age, Welsh speaking, salary required. Davies, Chemist, High Street, Clydach, Swansea.

QUALIFIED male Assistant (under 30), of good general experience; permanency. Full particulars first letter. Garland, Pharmaceutical Chemist, Cannock, Staffs.

RELIABLE Locum wanted at once; must be first-class Dispenser, and used to good-class business; no N.H.I. Reply, stating age, qualification. references, and usual full particulars, to Moorhouse, Chemist, Barnsley.

REQUIRED, Manager, qualified, for up-to-date business in Hampstead district; Window-dressing and Photographic experience essential. Send full particulars to 69/299, Office of this Paper.

WANTED immediately, Qualified Manager for Branch; one with view to succession will be considered. Send full particulars, first letter, stating age and salary required (outdoors). Locum also required, qualified lady will suit. State terms to Francis, Chemist, New Tredegar.

WANTED, smart qualified Assistant; outdoor; male; 24-30; good Counterman; thorough knowledge Photography; must be reliable and quick Dispenser; capable taking charge occasionally. Particulars first letter, references, height, age, salary required. "Clyno," 108 Queen's Road, Finsbury Park.

WANTED, end of August, an experienced Assistant; outdoors; qualified preferred; easy hours; permanency for a suitable man. Apply in first instance by letter, giving full particulars and salary required, to Bernard W. Leefe, Pharmacist, Pinner, Middlesex.

WANTED, a qualified lady Chemist; permanent; not over 35; male assistant kept. Apply, full particulars, Davies, Chemist, Castle Street, Caerphilly, near Cardiff.

WANTED, Assistant, Minor or Hall qualification, for general business. Apply, stating terms, etc., to S. Broadbent, Ltd., The Pharmacy, Stretford, near Mancbester.

WANTED, qualified Locum for fortnight from August 24; Retail shop and N.H.I. Prescriptions; state terms. General Manager, Co-operative Society, Long Eaton, Nottingham.

WANTED, fully-qualified Manager. Write, stating age, terms and experience; must have first-class references for complete control. P.C.B. 3/20, Office of this Paper.

WANTED immediately, qualified Manager for small business; good references required. The business is for disposal at a give-away price; an excellent opportunity for someone with small capital to acquire same. "Sigma," 31/38, Office of this Paper.

WHOLESALE.

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

The Advertiser may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

A FIRM of Manufacturing Chemists in the North of England require the services of a Representative for Northern Ireland. It is essential that applicants have established connections with Medical men and Retail Chemists in this territory, and possess experience in the Drug Tradc. 69/292, Office of this Paper.

CHEMIST or Veterinary Surgeon's services to assist in Manufacture of Animal Medicines, view to become Assistant Manager or associated in the business. Applicants mnst possess following qualifications: Age 30 or so, health A1, experienced debater or public speaker, able to introduce capital. Advertisers are old-established firm of repute (partner retiring), having thousands customers amongst agriculturists. Replies received strict confidence. Fullest information invited, experience, and on points mentioned to command consideration. 50/500, Office of this Paper.

LADY required by London Wholesale Manufacturing Chemists for determining spirit strengths in accordance with Excise Regulations for Customs purposes. Apply by letter, stating age, qualifications and wages required, to "Lab," 69/290, Office of this Paper.

REPRESENTATIVES required by leading London Wholesale Druggists for (a) Birmingham and district (local resident), (b) Kent, Surrey and Sussex; must have established connection with entree to the best buyers. Applicants should give full particulars of experience, when disengaged and remuneration required, in confidence, to "Progress," c/o Brockie, Haslam & Co., 23 Fleet Street, E.C.

REPRESENTATIVE (with connection) to call on Chemists, etc., wanted for Manchester and district by well-known North Country Wholesale House; every facility offered for smart man to do good business; keen prices and prompt motor delivery. Send fullest particulars of experience and references to 69/289, Office of this Paper.

PEPRESENTATIVE required, well known among the best Chemists in London and suburbs, to carry additional lines; good commission (20%) offered to one with live connection; small samples. Full particulars of age, whom representing, etc., "J. B." (P.C.B. 3/21), Office of this Paper.

REPRESENTATIVE, with good knowledge of Toilet business and live connection in Yorkshire, Northumberland and Durham; progressive position to applicant with proved selling ability. Full details of experience, salary, etc., in first instance to 69/297, Office of this Paper.

PEPRESENTATIVE in the Toilet Trade for Outer London. South and South-East Coast; applicants must have good connection and good knowledge of trade, and possess selling imagination. Particulars of past and present engagements, in confidence. 69/296, Office of this Paper.

WELL-KNOWN Manchester House requires an energetic man to take charge of the Packing Room; used to assembling orders; a quick and careful checker. Also man to take charge of small Packed Goods Department, with some knowledge of Sundries and Patent Medicines. Apply, giving full particulars of previous experience, to "Discipline," 69/295, Office of this Paper.

[COLONIAL, INDIAN AND FOREIGN.]

CALCUTTA.—Assistant wanted for Calcutta; Minor qualification; under 25; single; must be neat Dispenser; preference to one with Photographic experience; 4 years' agreement; salary 1st year, Rs. 500; 2ud, 525; 3rd, 550; 4th, 575 monthly; passage paid out and home. Full particulars of experience, etc., to be sent to P.C.B. 2/27, Office of this Paper.

INDIA.—British firm in India requires at once qualified Pharmaceutical Chemist, single, age 30-35, to take charge of Dispensary, Mineral Water and Ice Factory; applicants must have highest references and able to control staff; three years' agreement; passage paid out and home; salary, first year £350, rising £25 per annum to £400. Apply Leaders, Solicitors, 49-50 Newgate Street, E.C.1.

INDIA.—Assistant, qualified Chemist; should possess good knowledge of Photographic work; location India; age under 25; salary from 500 rupees per month; four years' agreement; passage out and home. Call C. W. Petty & Company (Appointment Specialists), 53 Haymarket, S.W.1. Gerrard 3412-3413.

SITUATIONS WANTED.

RETAIL.

[HOME.]

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

A.A. A. -CAPABLE, unqualified, 29, married, desires perdistrict. Apply 29/14, Office of this Paper.

A.A.A. -QUALIFIED Manager, married, no family, up-bo-date in Photography (D. & P.), Window-dressing and Counter; manager of present business 2½ years; would accept salary with commission for increase of turnover. P.C.B. 3/19, Office of this Paper.

A CAPABLE, unqualified Assistant, 39; all-round experience, including Optics; would take charge and an interest in business; London. Apply 31/34, Office of this Paper.

A LL-ROUND; unqualified; 35; married; capable all branches; up-to-date Windows, Photographic, etc.; good experience as Manager; used to quick business; energetic and a worker; 8 years last two situations; London or suburbs. 32/4, Office of this Paper.

A N experienced Assistant, 37; unqualified; smart Salesman, competent Dispenser, practical Photography; last position Assistant (5 years); seaside (season) or provincial town. "Disengaged," 62 Westgate, Wakefield.

A PPRENTICESHIP wanted by youth (aged 18); passed Part I of Minor; no salary required; in or near London preferably. Apply W. Ziman, 66 Kenninghall Road, Clapton, E.5.

AS Manager, 32, first-class Counter and Dispensing experience (London, West), requires permanency; disengaged; London or suburbs. "Ph.C.," 32/10, Office of this Paper.

A SSISTANT or Branch Manager; 35; many years' experience; auqualified; married; abstainer; smart appearance; first-class references; disengaged; living accommedation if possible "Yeldham," 3 Alton Terrace, North Hill, Plymouth.

A SSISTANT seeks permanent or part-time; referred Pharmacy; reliable and well experienced. "M.," 50 Hemberton Read, Stockwell, S.W.9.

A SSISTANT, unqualified, married, desires post in good-class Pharmacy; 12 years' experience; age 26; height 5 ft. 3 in. M. H. Barnes, 24 Osterley Park Road, Southall, Middlesex.

A SSISTANT; unqualified; abstainer; 33; married; good Dispensing and Counter experience; excellent references. "Sodium," 38 Riverview Grove, Chiswick.

A SSISTANT; unqualified; married; age 28; town and country experience, all departments; English and Welsh speaking; country preferred, not essential. Evans, c/o Perkins, Chemist, Knighton, Radnorshire.

BRIGHTON (or near).—Minor Student seeks part-time situation for next six weeks. "Chemicus," 4 Stanford Road, Brighton.

CAMBRIDGE DISTRICT.—Young lady, Hall qualification; Hospital experience; good references; Hospital, Chemist or Doctor. Graham, Manse, Robin-Hood's-Bay, Yorkshire.

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EXPERIENCED, qualified man, 50, healthy and active, present position over 20 years, shortly requires position of trust or management (Wholesale or Retail); financial interest if required; moderate salary; good-class husiness essential. "Gennine," 31/36, Office of this Paper.

LADY Dispenser (Hall) requires post; 3 years' experience, Doctor, Hospital; moderate salary. Allanson, 4 Heathville, Dallington, Northampton.

LADY Dispenser (Hall), 7 years' experience, requires post, Locum, permanency; Doctor, Hospital, Institution. B. Lismore, West Road, Guildford.

LADY Assistant; Senior Oxford, Gordon Hall School, Apothecaries Hall Certificate; over 3 years Dispensing, Retail and Photographics; situation easy reach of Finshury Park. "Phyllis," Camera Corner, N.13.

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LADY Assistant, unqualified, desires post in London; Counter, Photographic and Window-dressing; 8 years' experience. 31/26, Office of this Paper.

LOCUM or relief; unqualified; excellent references and experience; linguist; disengaged shortly. 23/26, Office of this

LOCUM; experienced; excellent references; elderly; disengaged August 20; London or suhurhs. "Chemist," "Addington House," Abhey Wood, London, S.E.

LOCUM; experienced; highest references; abstainer; take entire charge; knowledge Photography; terms moderate; disengaged September 21 onward. "Chemicus," c/o Evans Sons Lescher & Wehb, Ltd., Chemists, Liverpool.

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LOCUM TENENS.—Retired Chemist is open to engagements; Midlands or West preferred. Apply 32/21, Office of this Paper.

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MANAGER, Assistant or Locum; experienced; good Salesman; reliable; middle-age; unqualified; entertain succession. "Statim," 14 Hubert Grove, Stockwell, S.W.9.

MANAGER; comprehensive experience, Dispensing, Photography, Optics, Window-dressing, etc.; married; unqualified; commencing salary immaterial. "Southern," 10 Trinity Street, Hastings.

MANAGER or Locum; qualified; experienced; well recommended; disengaged from August 27. 21 Aubrey Road, Small Heath, Birmingham.

MANAGER, 28, Scot, desires post with view to succession; thorough all-round Retail experience; London and provincial; energetic and reliable. "M. J. W.," 31/33, Office of this Paper.

MANCHESTER.—Lady, referred Pharmacy, requires post, August 10, permitting attendance Revision classes, Mondays, Thursdays. Davison, 8 Dalewood Avenue, Beauchief, Sheffield.

MINOR Student (referred Botany) wants post for month or six weeks; South London preferred; 5 years' good all-round experience. "P.," 29/15, Office of this Paper.

PART-TIME Assistant; unqualified; middle-age; married; well experienced; good references; thoroughly capable and reliable; country preferred. 32/1, Office of this Paper.

PHARMACIST, disengaged August 5, French and English Pharmacy, seeks position, preferably Managership or Locum to tem. Please apply "Pharmacien," 24 Third Avenue, Walthamstow, E.17.

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QUALIFIED, age 35, married, requires post as Manager; country preferred. 32/16, Office of this Paper.

 $\mathbf{R}^{\mathbf{ELIABLE}}$, qualified man; 44; Locum or Manager. Please this Paper. Apply 30/19, Office of

UNQUALIFIED, 21; 3½ years' good Dispensing experience. West, 77 Rawson Road, Seaforth, Liverpool.

UNQUALIFIED lady Assistant desires post; 7 years' experience, Counter, Dispensing, and Book-keeping. English, Park Street, Worksop, Notts.

YOUTH, aged 17 years, height 5 ft. 3 in., passed London Matric., desires Apprenticeship with Chemist; London (North) preferred; salary expected. D. Lennard, 170 Blackstock Road, Highhury, N.5.

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LADY Representative, residing Edinhurgh, desires position with well-established Toilet House or Food Specialists; territory, Edinhurgh to Borders; keen worker; excellent references; ahle drive car. 32/13, Office of this Paper.

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